TM 11-2619

WAR DEPARTMENT TECHNICAL MANUAL

RADIO CONTROL CENTRAL AN/TRQ-1 ( )

RESTRICTED. DISSEMINATION OF RESTRICTED MATTER. The information contained in restricted documents and the essential characteristics of restricted materiel may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also par. 28, AR 380-5, 15 Mar 1944.)

WAR DEPARTMENT *29 JULY 1944*

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WAR DEPARTMENT
WASHINGTON 25, D. C., 29 July 1944

TM 11-2619, Radio Control Central AN/TRQ-1 ( ) is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
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OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.

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I C 11 (5); plus paragraph 9a, modified.
(For explanation of symbols see FM 21-6.)

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DESTRUCTION NOTICE

WHY — To prevent the enemy from using or salvaging this equipment for his benefit.

WHEN — When ordered by your commander.

HOW — 1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.

2. Cut —Use axes, handaxes, machetes.

3. Burn —Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

4. Explosives—Use firearms, grenades, TNT.

5. Disposal —Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT.

WHAT — 1. Smash—All receivers by sledge hammer blows directed at front panels to buckle ganged capacitors and obliterate dial apertures; all tubes; remote control units; typewriters by blows on keyboard; coupling units; battery charger; battery by crushing the case; power unit cooling and oil systems; etc.

2. Cut —Coaxial cables, speaker leads, wiring.

3. Burn —Set wiring, anything inflammable.

4. Bend —Antenna equipment, variable capacitor plates.

5. Bury or scatter—Everything possible.

DESTROY EVERYTHING

SAFETY NOTICE

VOLTAGES PRESENT WITHIN THESE EQUIPMENTS CAN CAUSE DEATH ON CONTACT. BE CAREFUL, THEREFORE, WHEN PANELS ARE REMOVED. ONLY NORMAL CARE IS NECESSARY, HOWEVER, WHEN HANDLING EXPOSED WIRING, SINCE NO VOLTAGES IN EXCESS OF 115 VOLTS ARE PRESENT.

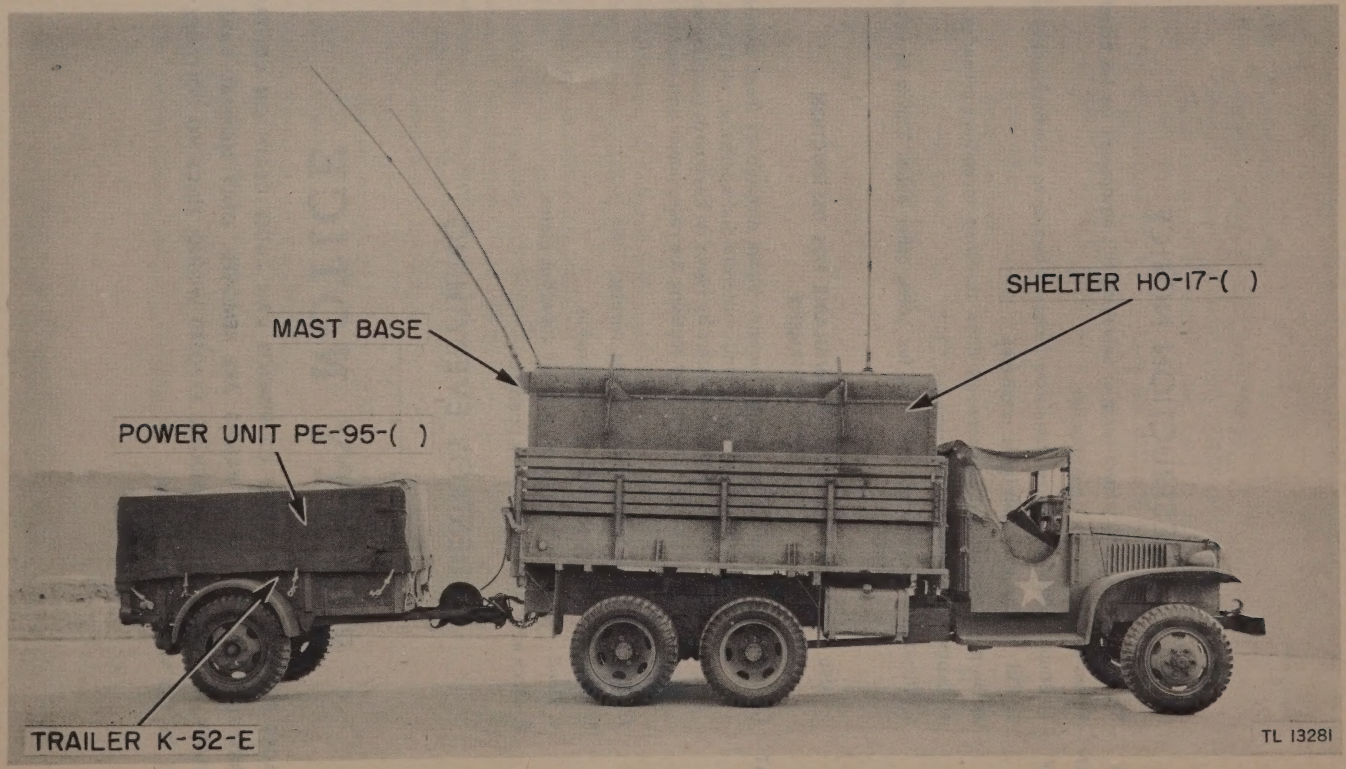


Figure 1. External view of truck and trailer, placement of whip antennas indicated.

SECTION I
DESCRIPTION

1. GENERAL.

a. Description. Radio Control Central AN/TRQ-1 ( ) is a four-position, radio-control-intercept station and is installed in Shelter HO-17-( ) (fig. 1 and fig. 2).* The entire radio equipments and shelter are usually mounted on a 2½-ton, 6 x 6 cargo truck. The main power source for the control central equipment is Power Unit PE-95-( ) which is installed in Trailer K-52-E. The control central has four operating positions, each position having provision for wire communication with, and remote control of, a radio transmitting station. The transmitting station can be located anywhere within a 1-mile radius of the control central. Three of the operating positions have as required equipment, two monitoring receivers, a remote-control coupling unit, a typewriter for maintaining a log of operations and for transcribing messages, and a telegraph key. The fourth position has as its required equipment, two receivers of different design which afford more extended high-frequency coverage, a 12-position telephone switchboard with terminal facilities for eight telephone circuits, a remote-control coupling unit (similar to those at the other positions), a typewriter, a key, a receiver-transmitter unit for communication with other control centers, and a frequency meter for general utility use in all four positions (fig. 4). Other standard components of the installation are a 12-volt storage battery, a battery-charger, the 115-volt power unit mounted in a trailer (previously mentioned), a blackout interlock switch, a heater, a fan, two circuit breakers, and an Interphone Control Box BC-606-( ) which is connected between the trailer and truck proper, to permit control of Radio Set SCR-828-A while in motion.

b. Frequency Ranges. (1) Positions 1, 2, and 4 of the control central system monitor the frequency bands from 150 kc to 18,000 kc through the use of Radio Receivers BC-342-( ) and BC-344-( ). Radio Receiver BC-342-( ) covers from 1,500 kc to 18,000 kc; Radio Receiver BC-344-( ) from 150 kc to 1,500 kc.

(2) Position 3 of the control central system monitors the frequency ranges from 1.25 mc to 143 mc; Radio Receiver BC-794, a Hammarlund Super-Pro, covering from 1.25 mc to 40 mc, and a Hallicrafter Model S-36 covering the ranges from 28 mc to 143 mc. Radio Set SCR-828-A which is also at position 3, provides frequency-modulated, two-way communication with other similar installations operating in the ranges between 27 mc and 38.9 mc, on any one of four preselected, band-switch controlled channels (fig. 3).

> **NOTE:** The remote transmitter operates at variable frequencies, as directed by control central, to zero beat with the intercepted signal.

2. POWER REQUIREMENTS.

a. Power Unit PE-95-( ) which is mounted in Trailer K-52-E, supplies 115-volt, 60-cycle ac to all electrically-operated components of Radio Control Central AN/TRQ-1 ( ) with the exception of the following:

(1) Radio Set SCR-828.A.
(2) All Remote Control Units C-103/TRQ-1.
(3) Frequency Meter Set SCR-211-( ).
(4) Switchboard BD-72-( ).

b. Radio Set SCR-828-A and Remote Control Units C-103/TRQ-1 are powered by a 12-volt storage battery and associated charger, and are connected so that charging is possible while the battery is being used; Frequency Meter Set SCR-211-( ) and Switchboard BD-72-( ) are powered by means of self-contained batteries.

3. COMPONENT PARTS.

Quantity	*Article*
1	Antenna Assembly AS-93/MRQ-2.
4	Antenna Control Box C-109/MRQ-2.
1	Antenna Coupling Unit CU-23/TRQ-1 includes the following: 2 Lamp LM-27; 1 in use, 1 running spare. 4 Tube JAN-6AC7. 1 Tube JAN-6X5GT.
1	Axle RL-27-B.
1	Battery: storage; 12-volt; SAE 8T.
1	Battery Charger PP-78 ( )/MRQ-2 includes: 2 TM11-2527.
4	Box BX-19-A: (for running spare receiving tubes, fuses, and lamps).
1	Broom, Floor, Sears, Roebuck & Co., No. 11F06606, or equal.

*Wherever symbol ( ) appears in conjunction with equipment nomenclature, it indicates all models and procurement of that equipment.

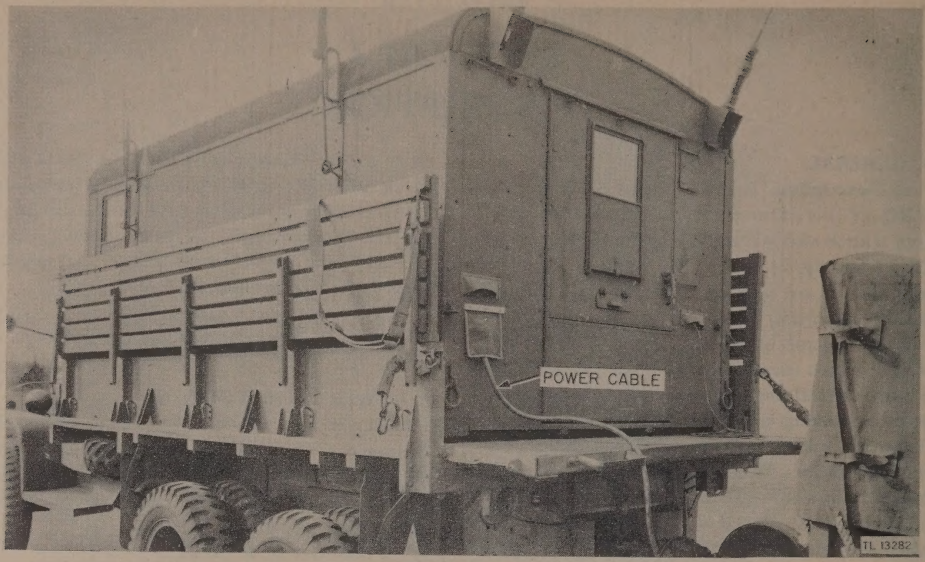


Figure 2. Radio Control Central AN/TRQ-1 ( ), external view showing Shelter HO-17-( ).

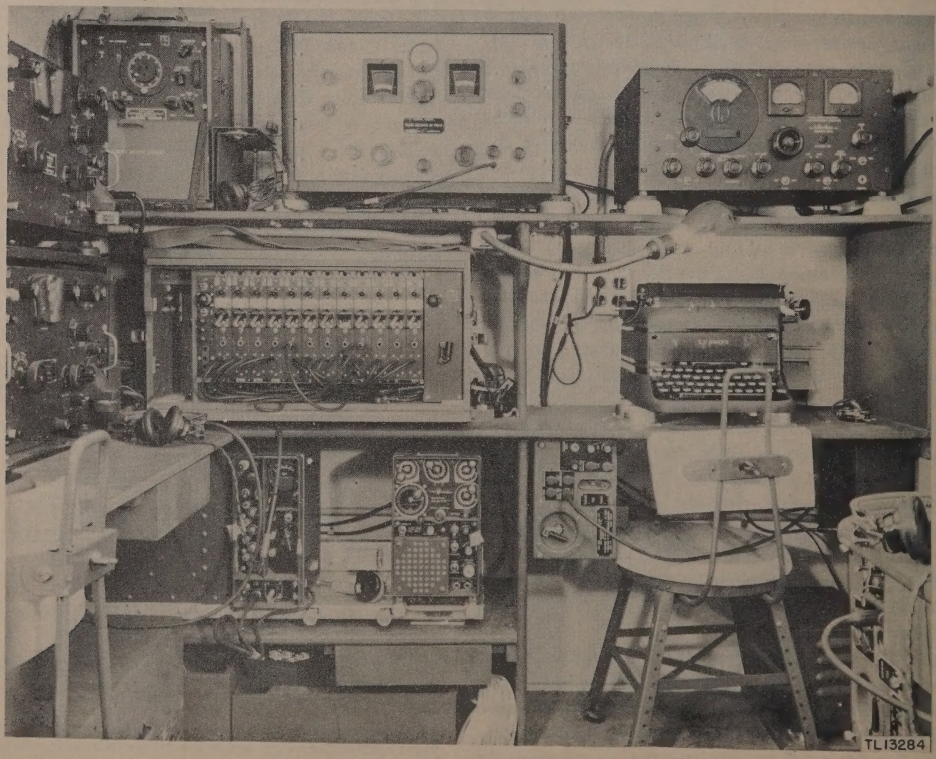
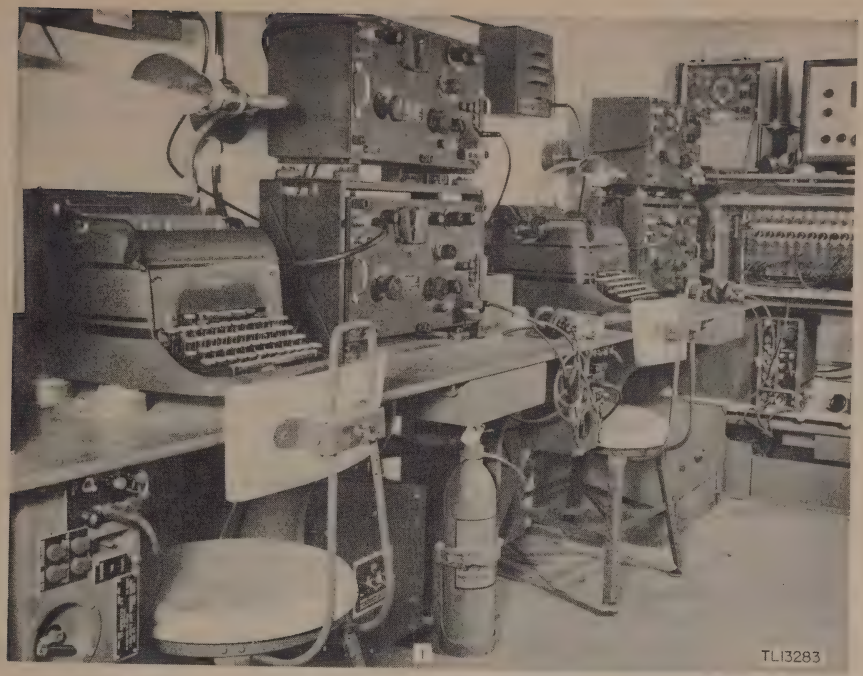


Figure 3. Radio Control Central AN/TRQ-1 ( ), position 3.



1 Position 1 and 2
2 Postion 4

Figure 4. Radio Control Central AN/TRQ-1 ( ), interior view.

Quantity	Article
1	Cable [power supply to Radio Receiver BC-794-( )] same construction as Hammarlund Mfg. Co., No. SA-35 or equal, except length shall be 8 ft 4 in.
4	Chair: type No. 440.
5	Chest Unit H-19/U or equal; 4 in use, 1 running spare.
1	Chest CY-71/MRQ-2 (battery).
1	Clock: type A-6 or equal.
2	Cord: 10-ft, 1-conductor, approximately No. 7AWG copper braid (for grounding connection to GP-168).
4	Cord CD-201: (for Key J-41-A).
6	Cord CD-307-A: 4 in use, 2 running spares.
2	Cord CD-318-A: running spare.
6	Cord CD-370: (Radio Receivers BC-342-( ) and BC-344-( ) to power outlet a-c).
2	Cord CG-62/TRQ-1: 3 ft; Radio Receiver BC-794 and Hallicrafter type S-36 receiver, or equal, to Antenna Control Box C-109/MRQ-2.
1	Cord CG-62/TRQ-1: 8 ft; Mounting FT-237-( ) to Mast Base MP-48.
2	Cord CG-67/MRQ-2: 15 ft; Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23/TRQ-1 and Antenna Control Box C-109/MRQ-2 to Mast Base MP-48.
1	Cord CG-67/MRQ-2: 8 ft; Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23/TRQ-1.
1	Cord CG-67/MRQ-2: 3 ft; Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23/TRQ-1.
1	Cord CG-67/MRQ-2: 2 ft 6 in.; Mast Base MP-48 to Antenna Coupling Unit CU-23/TRQ-1.
6	Cord CG-68/MRQ-2: 2 ft; Radio Receivers BC-342-( ) and BC-344-( ) to Antenna Control Box C-109/MRQ-2.
3	Cord CX-132/TRQ-1: 5 ft; Radio Receivers BC-342-( ) or BC-344-( ) to Loudspeaker LS-3.
1	Cord CX-138/MRQ-2: Mounting FT-237-( ) to Cord CX-139/MRQ-2.
1	Cord CX-139/MRQ-2: Interphone Control Box BC-606-( ) to Cord CX-138/MRQ-2.
2	Lamp: 50-watt; 12-volt; for trouble lamp; running spare.
1	Lamp: trouble; 12-volt d-c with 25-ft extension cord includes: 1 lamp, 50-watt, 12-volt.
1	Linesman Equipment TE-21.
4	Loudspeaker LS-3.
3	Mast Base MP-48.
3	Mast Base Bracket MP-50.
7	Mast Sections MS-49 and MS-54: 1 each in use, 3 each running spares.
7	Mast Sections MS-50 to MS-52: 3 each in use, 4 each running spares.
7	Mast Sections MS-53; 1 in use, 6 running spares.
2	Microphone T-17.
2	Microphone T-45: running spares.
6	Mounting FT-178: for Radio Receivers BC-342-( ) and BC-344-( ).
1	Mounting FT-237-( ).
10	Pads: memorandum; white; 8" x 10½"; ruled.
12	Pencils: Dixon's Eldorado 188, No. 3-5/10 2H, or equal.
1	Power Supply Unit RA-84 includes: 1 dust cover. 10 Fuse FU-27; 1 in use, 9 running spares. 5 Tube JAN-80; 1 in use. 5 Tube JAN-5Z3; 1 in use.
3	Radio Receiver BC-342-( ). Each set includes 2 TM11-850N.
3	Radio Receiver BC-344-( ). Each set includes 2 TM11-850N.
1	Cord CX-142/MRQ-2: Battery Charger PP-78( )/MRQ-2 to d-c and a-c junction box.
1	Cord CX-144/TRQ-1: 5 ft; Hallicrafter type S-36 receiver or equal to Loudspeaker LS-3.
1	Cord CX-144/TRQ-1: 9 ft; Radio Receiver BC-794 to Loudspeaker LS-3.
4	Cord CX-269/U: Remote Control Unit C-103/TRQ-1 to d-c junction box.
4	Cord CD-268: radio receiver to Remote Control Unit C-103/TRQ-1.
1	Dynamotor DM-64: for Radio Receiver BC-923-A (part of Radio Set SCR-828-A).
1	Dynamotor DM-65: for Radio Transmitter BC-924-A (part of Radio Set SCR-828-A).
1	Extinguisher: 4-lb size; carbon-dioxide; with mounting.

Quantity	Article
1	Frame FM-59: for 2 Reels DR-4.
1	Frequency Meter Set SCR-211-( ) includes 2 TM 11-300.
1	Fuse Box MX-154/MRQ-2 includes:
	7 fuses, 30-amp, 125-volt; 2 in use; 5 running spares.
1	Ground clamp and braid assembly: for grounding Shelter HO-17-( ) (mobile) to truck; Hallicrafter part No. 114D061, or equal.
6	Headset HS-33: 4 in use, 2 running spares.
6	Headset Adapter MC-385: for Headset HS-33; 4 in use, 2 running spares.
1	Heater: electric; 1,500-watt; 115-volt.
1	Interphone Control Box BC-606-( ).
4	Key J-41-A.
2	Key J-45: running spares.
12	Lamp: 50-watt; 115-volt; screw type base; for emergency light and lamp fixtures; 6 in use, 6 running spares.
1	Radio Receiver S-36: Hallicrafter Co. includes:
	8 Tube JAN-6H6; 2 in use.
	4 Tube JAN-6J5; 1 in use.
	10 Tube JAN-6V6; 2 in use.
	10 Tube JAN-6AC7/1852; 2 in use.
	4 Tube JAN-6SK7; 1 in use.
	7 Tube JAN-954; 1 in use.
	7 Tube JAN-955; 1 in use.
	4 Tube JAN-OD3/VR-150: 1 in use.
	5 Tube JAN-5U4G; 1 in use.
	4 Tube JAN-6SL7GT; 1 in use.
	5 Tube JAN-6AB7; 1 in use.
	7 Tube JAN-956; 1 in use.
	12 Lamp LM-27; 2 in use, 10 running spares.
	6 Lamp LM-52; 1 in use, 5 running spares.
	6 Fuse FU-27; 1 in use, 5 running spares.
	2 TM 11-867.
1	Radio Receiver BC-794 includes:
	1 crystal; quartz, resonator type.
	1 Cabinet CH-104.
	4 Lamp LM-25; 2 in use, 2 running spares.
	2 Lamp LM-52; 1 in use, 1 running spare.
	1 Cable; power-supply.
	1 Cable; auxiliary battery.
	2 TM 11-866.

Quantity	Article
	4 Tube JAN-6C5; 1 in use.
	12 Tube JAN-6F6; 3 in use.
	12 Tube JAN-6K7; 3 in use.
	4 Tube JAN-6L7; 1 in use.
	4 Tube JAN-6J7; 1 in use.
	4 Tube JAN-6N7; 1 in use.
	12 Tube JAN-6SK7; 3 in use.
	4 Tube JAN-6SJ7; 1 in use.
	8 Tube JAN-6H6; 2 in use.
1	Radio Receiver BC-923-A (part of Radio Set SCR-828-A).
1	Radio Transmitter BC-924-A (part of Radio Set SCR-828-A).
4	Remote Control Unit C-103/TRQ-1.
150 ft.	Rope RP-5
1	Shelter HO-17-( ).
1	Spring clip for Interphone Control Box BC-606-( ).
2	Stake GP-16: for grounding connections.
1	Switchboard BD-72-( ).
2	TM 11-601: for Radio Set SCR-808-A and SCR-828-A.
2	TM 11-2619 for Radio Control Central AN/TRQ-1 ( ).
1	Tool Equipment TE-41.
1	Trailer K-52-E includes Power Supply PE-95-( ) and TM 11-904.
1 set	Tubes: running spares for Radio Control Central AN/TRQ-1 ( ) includes the following:
	13 JAN-6C5.
	9 JAN-6F6.
	14 JAN-6K7.
	7 JAN-6L7.
	6 JAN-6R7GT.
	8 JAN-5W4.
	12 JAN-6K7GT.
	3 JAN-OD3/VR-150.
	5 JAN-6V6GT.
	4 JAN-6SL7GT.
	2 JAN-6J5.
	5 JAN-6H6.
	4 JAN-6SK7.
	10 JAN-6AC7.
	1 JAN-6AB7.
	2 JAN-954.
	2 JAN-955.
	2 JAN-956.
	1 JAN-5U4G.
	3 JAN-6SJ7.
	1 JAN-6AG7.

Quantity	Article
	2 JAN-815.
	1 JAN-12SA7.
	2 JAN-12SG7.
	2 JAN-12SJ7.
	3 JAN-12SC7.
	1 JAN-6J7.
	1 JAN-6SJ7.
	1 JAN-6N7.
	1 JAN-5Z3.
	1 JAN-80.
	1 JAN-6X5GT.
4	Typewriter MC-88: complete with cover.
100 ft	Wire: antenna; stranded and enameled No. 12 B & S gauge.
2 reels	Wire W-110-B: on 2 Reels DR-4; ½ mile on each reel.

4. DESCRIPTION OF COMPONENT PARTS. A description of component parts appears below.

5. ANTENNAS. Four antennas are provided for use with Radio Control Central AN/TRQ-1 ( ).

a. Three whip antennas are ordinarily used in the equipment. Facing the rear of the truck, the antenna for operation positions 1, 2, and 4 is mounted at the rear left of the shelter roof; the position 3 antenna is at the right rear, and the antenna for Radio Set SCR-828-A is mounted at the front left-hand corner. Each of the antennas is inserted in an individual Mast Base MP-48, and is rigidly supported by a Mast Base Bracket MP-50. The position 1, 2 and 4 antenna is a six-section unit (Mast Sections MS-49 to MS-54); the other pair of antennas are identical, consisting of three sections each (Mast Sections MS-50 to MS-52).

b. Auxiliary Antenna Assembly AS-93/MRQ-2 is used for operating positions 1, 2, and 4 when increased gain is needed. The assembly consists of a single-wire antenna and counterpoise combination, the antenna proper being supported by four Lance Poles PO-2, suitably guyed. When this antenna is used, it is clipped to the left rear mast base. It is fully described in TM 11-2610.

6. ANTENNA COUPLING UNIT CU-23/TRQ-1. This consists of an untuned, five-tube coupling unit, which permits the operation of three receivers from a single antenna, without interaction (figs. 5, 6, and 7). It is mounted on the left side of the shelter, adjacent to the mast base of the three-position whip antenna. The coupler is con-

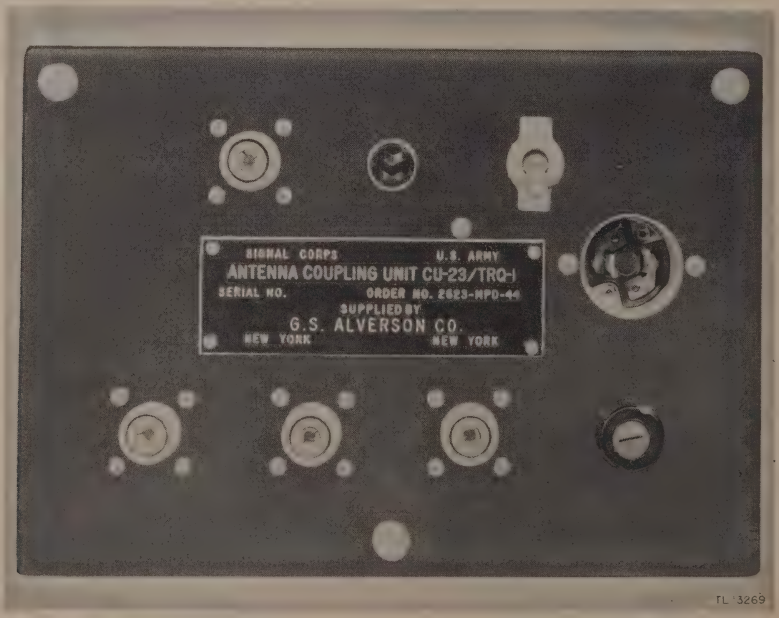


Figure 5. Antenna Coupling Unit CU-23/TRQ-1, front view.

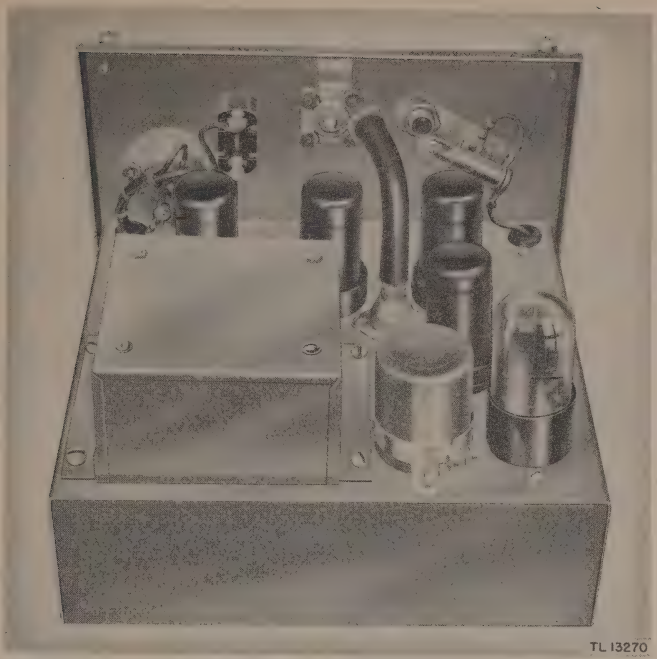


Figure 6. Antenna Coupling Unit CU-23/TRQ-1, top view of chassis.

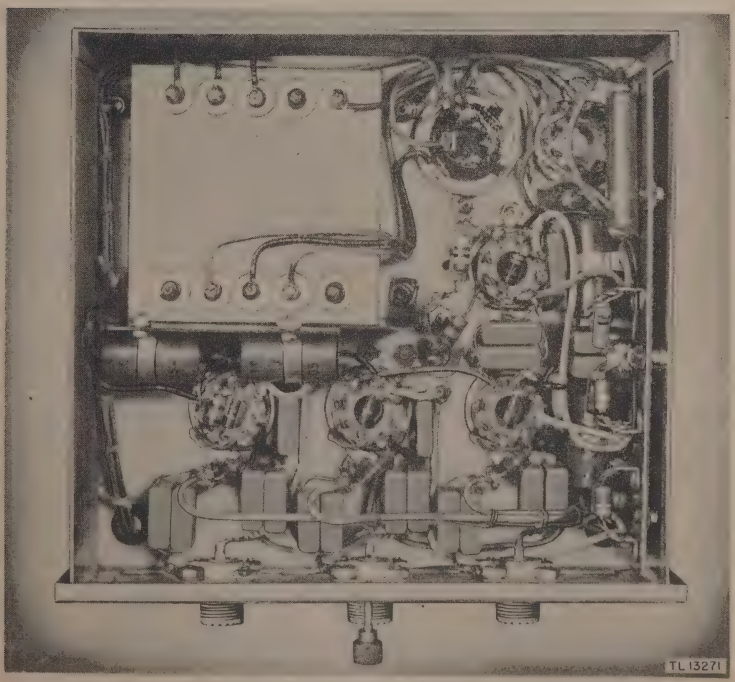


Figure 7. Antenna Coupling Unit CU-23/TRQ-1, bottom view of chassis.

nected to the antenna through coaxial Cord CG-67/MRQ-2.

7. EQUIPMENTS AT POSITIONS 1, 2, AND 4. These consist of three separate sets of identical equipments, comprising the following components:

a. Radio Receiver BC-342-( ). This radio receiver covers the frequency ranges from 1.5 mc to 18 mc. A complete description of the receiver is found in TM 11-850-N.

b. Radio Receiver BC-344-( ). This radio receiver covers the frequency ranges from 150 kc to 1,500 kc. For a complete description of this receiver, refer to TM 11-850-N. Radio Receiver BC-344-( ) is mounted directly above Radio Receiver BC-342-( ) in each operating position.

c. Antenna Control Box C-109/MRQ-2. This control box is used to switch the antenna to either receiver at each of the three positions, as required, through a coaxial cable. Three Cords CG-67/MRQ-2 connect the Antenna Coupling Unit CU-23/TRQ-1 to each of the antenna control boxes. Two separate Cords CG-68/MRQ-2 connect each antenna control box to each pair of Radio Receiver BC-342-( ) and Radio Receiver BC-344-( ).

d. Speaker LS-3 and Headsets. These are provided in each position. The speaker is connected to either receiver in any of the three positions, as required. Connection between speaker and set is made through Cord CX-132/TRQ-1. Headsets are used to prevent confusion between operators and to prevent feedback when control central operators are each remotely operating a transmitter and monitoring its output.

e. Remote Control Unit C-103/TRQ-1. This unit permits the following operations from Control Central AN/TRQ 1 at all four positions, using telephone Wire W-110 to transmitter truck (figs. 8, 9, and 10).

(1) Keying of the remote transmitter in continuous-wave (c-w) position.

(2) Transmission of radio receiver outputs to the remote transmitter operators.

(3) Turning the remote transmitter high-voltage supply on or off in phone operation, thus controlling the periods of operation.

(4) Voice modulation of the remote transmitter from control central.

(5) Monitoring of the transmitted signal. Remote Control Unit C-103/TRQ-1 is described in paragraphs 22 and 35. Cord CD-268 connects the receiver to the remote control unit; Cord CX-269/U connects the unit to the d-c junction box.

f. Typewriter MC-88. Typewriter MC-88 on shock mounts is provided at all four operating positions.

8. EQUIPMENTS AT POSITION 3. These consist of the following:

a. Radio Receiver BC-794 (Hammarlund superpro). Radio Receiver BC-794 is connected to its Power Supply Unit RA-84 through a nine-conductor cable. Power Supply Unit RA-84 is connected to the 115-v a-c outlet at the rear of the equipment through a two-conductor cord. Antenna connection is made from the antenna binding post through Cord CG-62/TRQ-1 (3 ft) to the Antenna Control Box C-109/MRQ-2 located on ceiling between Receiver BC-794 and Receiver S-36. For a complete description of this receiver, refer to TM 11-866.

b. Radio Receiver (Hallicrafter S-36). Radio Receiver S-36 is also used in this position. See TM 11-867 for a complete description of the unit. Power connection is made to the rear of the set through a two-conductor cord and attached plug. The antenna connection is made to the same Antenna Control Box C-109/MRQ-2 as for Radio Receiver BC-794 by means of Cord CG-62/-TRQ-1 (3 ft).

c. Typewriter MC-88. Same as in positions 1, 2, and 4.

d. Remote Control Unit C-103/TRQ-1. Same as in positions 1, 2, and 4.

e. Switchboard BD-72-( ). A detailed description of Switchboard BD-72-( ) is given in TM 11-330. Power to Switchboard BD-72-( ) is derived from six Batteries BA-30 contained in the switchboard. Connection to the L terminal block at the rear left side of Shelter HO-17-( ) is made through a 10-pair Cable WC-535.

f. Radio Set SCR-828-A. For a detailed description of Radio Set SCR-828-A see TM 11-601. Power supply for the set is a 12-volt storage battery. Antenna connection to Mast Base MP-48 is made through a coaxial cable, Cord CG-52/-TRQ-1.

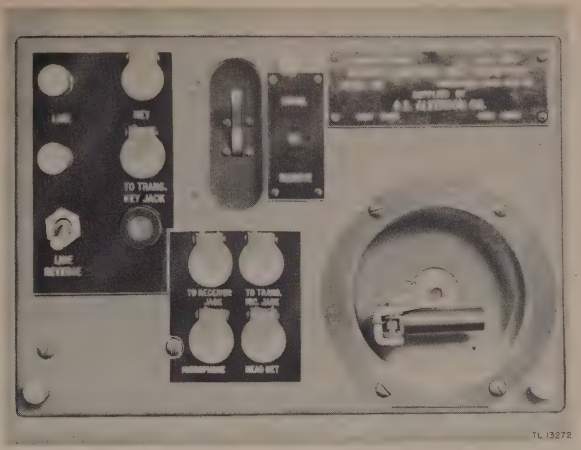


Figure 8. Remote Control Unit C-103/TRQ-1, front view.

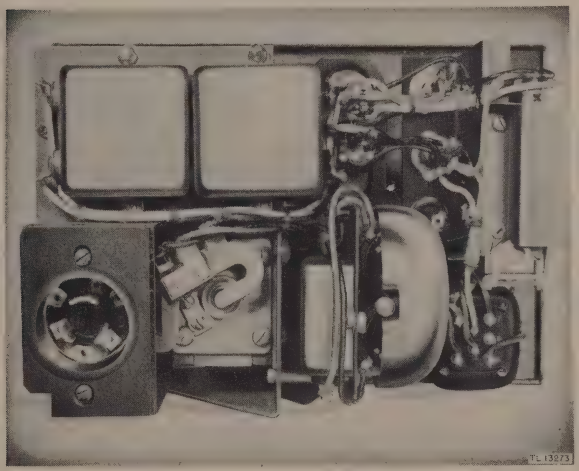


Figure 9. Remote Control Unit C-103/TRQ-1, top view of chassis.

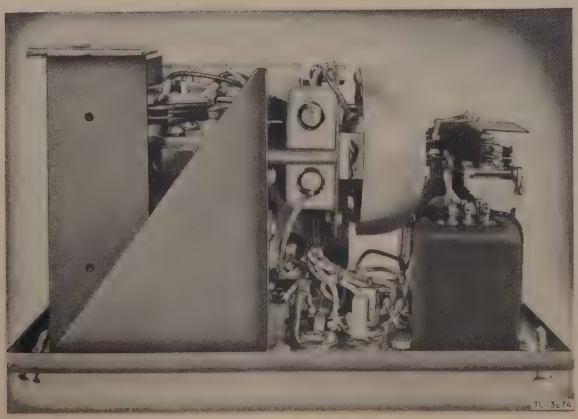


Figure 10. Remote Control Unit C-103/TRQ-1, bottom view of chassis.

g. Interphone Control Box BC-606-( ). The interphone box is connected between Radio Set SCR-828-A and the truck cab by means of Cords CX-138/MRQ-2 and CX-139/MRQ-2. Remote operation (fig. 11) of Radio Set SCR-828-A is possible, therefore, while the truck is in motion. For a complete description of Interphone Control Box BC-606-( ) see TM 11-601.

h. Battery. Storage Battery SAE-8T referred to in paragraph 4d(6) above, is a 12-volt, 168-ampere storage Ordnance battery and supplies power to Radio Set SCR-828-A and to Remote Control Units C-103/TRQ-1.

9. BATTERY CHARGER. PP-78( )/MRQ-2 Battery Charger PP-78( )/MRQ-2, a selenium rectifier type, operates from the 115-volt, 60-cycle, a-c power supply, and charges the 12-volt battery at a 10- or 20-ampere rate.

10. POWER UNIT PE-95-( ). Power Unit PE-95-( ) is mounted in Trailer K-52-E and forms a completely mobile generating unit. It provides approximately 10 kw of single-phase, 60-cycle ac at 115 volts. A complete description of the unit is given in TM 11-904.

11. FREQUENCY METER SET SCR-211-( ). This frequency meter set is completely described in Instruction Book for Frequency Meter Set SCR-211 or in TM 11-300. It has a self-contained power supply consisting of 10 batteries; 6 Batteries BA-2, 22½ volts each for B supply, and 4 Batteries BA-30, 1½ volts each for filament supply. It is shock-mounted and located near operating position 3. It is used for general utility frequency measurement throughout the unit and as an aid in setting the frequency of the remote transmitter.

12. BLACKOUT INTERLOCK SWITCH. A switch which is located adjacent to the rear door of the shelter puts out all the lights or connects the blackout interlock switch so that all lights are extinguished when the rear door is opened.

13. FAN. A fan is located on the right rear wall of the shelter near the ceiling and derives its power from the 115-volt source. It is used for general ventilation and for the comfort of the operating personnel. It is controlled by a switch located on the fan motor.

14. HEATER. A 2-kw heater is located on the floor at the right center of Shelter HO-17-( ). It operates from the 115-volt, a-c source, and is turned on or off by a switch on the front of the heater. It is used for the increased comfort of the operating personnel under adverse climatic conditions.

15. CIRCUIT BREAKERS. Two circuit breakers mounted in box on the left rear wall of Shelter HO-17-( ) are adjusted to disconnect the equipment from the 115-volt power supply when the supply current drain is excessive, as for example, in the case of short circuits in any of the equipments. One circuit breaker protects all a-c operated equipment with the exception of the heater. The heater is protected by the second circuit breaker.

16. CLOCK. A Longine-Wittnauer, 8-day, spring-operated clock is mounted on the wall over the door. It is used as a time standard whenever necessary, as for example in logging time-of-operations.

17. FIRE EXTINGUISHER, MODEL FF4. This fire extinguisher is of the standard type using carbon dioxide as the fire-killing element. It is mounted for convenient use when needed.

18. TECHNICAL MANUALS. Technical manuals explaining the proper use of the equipments are included as part of the equipment and should be referred to when necessary.

Figure 11. Truck cab showing Interphone Control Box BC-606 ( ).

SECTION II
INSTALLATION AND OPERATION

19. INSTALLATION PROCEDURE. Radio Control Central AN/TRQ-1( ) is supplied installed in Shelter HO-17-( ), transported by a 2½ ton, 6 x 6 cargo truck, along with Trailer K-52-E which contains Power Unit PE-95-( ), also previously installed. To place the control central in operating condition, follow the procedure outlined in the following paragraphs.

20. ANTENNAS. Assemble mast sections for each of the three antennas used for the control central, screwing each antenna securely into its Mast Base MP-48. All connections between mast sections must be tightened with pliers and all junctions taped to prevent loose and noisy joints.

CAUTION: Use pliers with care to avoid crushing or denting mast sections.

21. POWER UNIT PE-95-( ).

a. Connect two-conductor power cable through entrance hole at rear of Shelter HO-17-( ) and attach its lug terminals to the 115-v a-c terminals on Power Unit PE-95-( ).

b. Check gas, oil, water, and battery connections and start Power Unit PE-95-( ) as directed in TM 11-904.

c. Close both circuit breakers on wall at left side of rear door of Shelter HO-17-( ) by placing in the ON position.

d. Power should now appear at all a-c outlets.

NOTE: There are three types of power outlets used; two pin outlets for 115 v ac; three pin outlets for 12 v dc; four pin outlets for a combination of both 115 v ac and 12 v dc. These outlets are used to prevent making the wrong connections from the various components to the power source.

22. REMOTE CONTROL UNITS C-103/TRQ-1.

NOTE: It is important that all cords and plugs not needed for the operation to be performed be removed from jacks on the remote control unit.

a. Connect the telephone line from the remote transmitter to be controlled to the proper J block terminals; Terminal J1 to operating position 1, terminal J2 to operating position 2, etc.

b. If the length of telephone Wire W-110 does not exceed 1 mile in length (approximately two reels), no relay battery will be required at the remote end of the line [in Radio Control Central AN/TRQ-1-( )]. If the length of telephone Wire W-110 is from 1 to 3 miles long an external relay battery of 12 volts will be required at the remote end for proper operation.

c. To prepare these units for use proceed as follows:

(1) Open the remote control unit by removing the thumbscrews on the panel and sliding the chassis far enough out of the case to permit Plug Pl-68 (PL-2) on battery lead to be removed from jack J7 in rear of case. Then remove chassis from case.

(2) Set link switch SW-2 to EXT or INT depending upon whether or not an external relay is to be used in accordance with instructions of paragraph **b** above.

(3) Be certain microphone battery leads are connected for EXT mike battery.

(4) Replace chassis in case by first inserting Plug PL-68 (PL-2) in jack J7.

(5) Connect d-c battery plug PL-1 to d-c battery outlet on wall of Shelter HO-17-( ) by means of Cord CX-269/U.

(6) Connect telephone leads to binding posts on front panel of remote control unit.

(7) Place control switch SW-3 in TELEPHONE position.

(8) Plug headset into jack marked HEADSET.

(9) Plug microphone (either Chest Unit H-19 or Microphone T-17) into jack marked MICROPHONE.

(10) Connect Cord CD-268 from receiver to jack marked TO RECEIVER.

(11) Turn on receiver that is connected to remote control unit and listen in headset for signals.

(12) Call operator at other end of line by rapidly turning crank of hand generator.

(13) Plug hand key Cord CD-201 into jack marked KEY on panel of remote control unit.

(14) Set control switch to REMOTE position when ready to start operation.

(15) To operate the remote transmitter, be certain the remote operator is ready, and then press hand key.

NOTE: Type of operation to be used will be set up by operator at transmitter.

(16) If relay does not operate due to improper line polarity, set LINE REVERSE switch to opposite position.

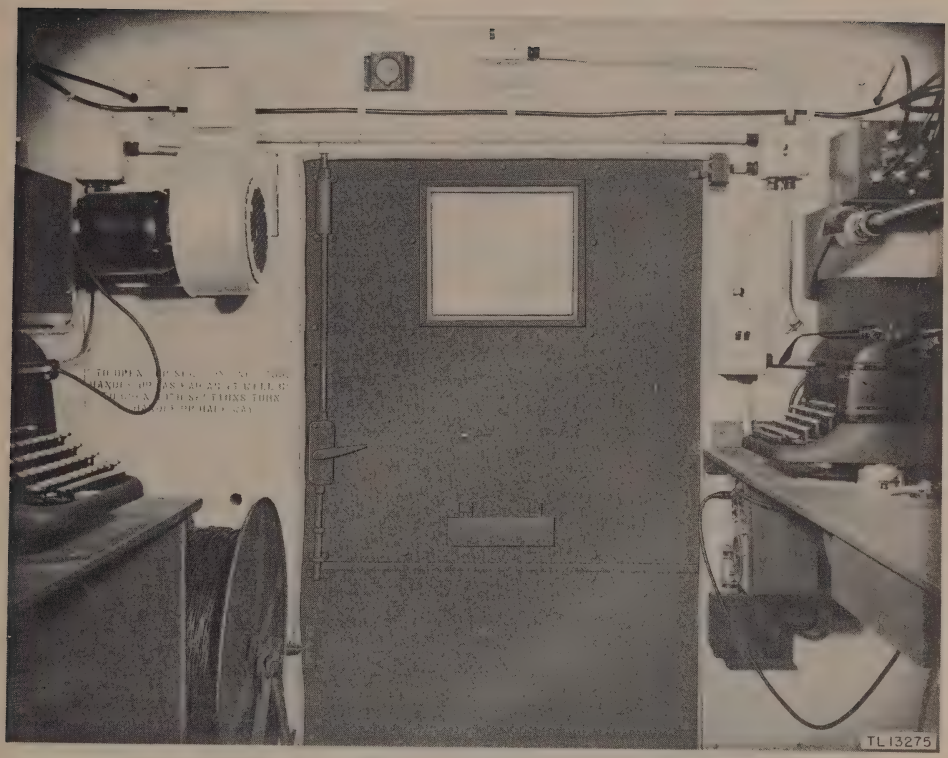


Figure 12. Interior Shelter HO-17-( ), rear view.

23. ANTENNA COUPLING UNIT CU-23/TRQ-1.

a. Connect the power cord to a 115-volt, a-c outlet.

b. Connect the input terminal of the antenna coupling to Antenna Mast Base MP-48, at the left rear of Shelter HO-17-( ) (fig. 12) by means of Cord CG-67/MRQ-2 (2 ft 6 in.).

c. Connect coaxial cable cord CG-67/MRQ-2 from the Antenna Control Box C-109/MRQ-2 at each operating position 1, 2, and 4 to the 3 output terminals of the Antenna Coupling Unit CU-23/TRQ-1.

d. Turn the coupling unit ON-OFF switch to ON.

e. No further adjustment is required.

24. BATTERY CHARGER PP-78 ( )/MRQ-2.

a. Connect the charger power cord to the combination a-c and d-c outlet.

b. For a 20-ampere charging rate, put switch on charger in the HIGH position; for the 10-ampere rate, place switch in LO position. In any event, shelter should have adequate ventilation.

c. Turn the ON-OFF switch to ON to charge battery. Charger may be operated while equipment is being used or vice versa.

25. INTERCEPT RECEIVERS BC-342-( ), BC-344-( ), BC-794, AND S-36.

a. Connect the power Cords CD-370 to the 115-volt, a-c outlets provided for each Radio Receiver BC-342-( ) and BC-344-( ). Connect a-c cord of each Radio Receiver BC-794 and S-36 to its respective a-c outlet.

b. Insert Plug PL-55 on Cord CD-268 from each Remote Control Unit C-103/TRQ-1 into the proper receiver output jack.

c. To monitor the loudspeaker output, connect Loudspeaker LS-3 to Radio Receivers BC-342-( ) and BC-344-( ) by using Cord CX-132/-TRQ-1 with Plug PL-68 at each end. Radio Receivers S-36 and BC-794 have speaker cords fastened to the screw terminals marked SPEAKER at the back of either set. The cords terminate in Plug PL-68 making for rapid connection to Loudspeaker LS-3.

d. Connect coaxial cable Cord CG-68/MRQ-2 from each Radio Receiver BC-342-( ) and BC-344-( ) to its respective Antenna Control Box C-109/MRQ-2 at operating positions 1, 2, and 4.

e. Connect coaxial cable Cord CG-62/TRQ-1 from Receiver BC-794 and S-36 to its Antenna Control Box C-109/MRQ-2.

f. Connect coaxial cable Cord CG-67/MRQ-2 from Antenna Control Box C-109/MRQ-2 at position 4 to the right rear Mast Base MP-48.

26. SWITCHBOARD BD-72-( ).

a. Insert 6 Batteries BA-30 into the switchboard battery box. The box is accessible from the rear of the switchboard (fig. 13). For the correct battery installation procedure, see TM 11-330.

b. Connect the incoming telephone lines to the terminals on the L telephone junction block at the left rear of Shelter HO-17-( ).

c. Connect Head and Chest Set TD1 by inserting Plug PL-58 into Jack JK-37 on the switchboard.

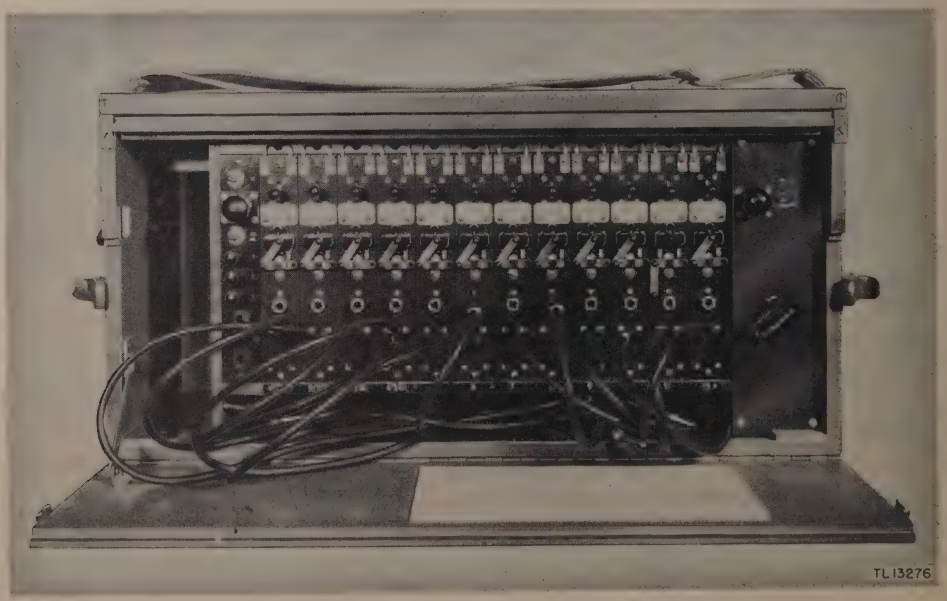


Figure 13. Switchboard BD-72-( ).

27. RADIO SET SCR-828-A.

a. Connect coaxial cable cord CG-62/TRQ-1 (8 ft 6 in.) from Mounting FT-237-( ) to the left front Mast Base MP-48.

b. Connect headset and microphone to their respective jacks on the unit.

c. Interphone Control Box BC-606-( ) is installed in the truck cab to operate Radio Set SCR-828-A while the control central is in motion. Connect the interphone cable Cord CX-139/-MRQ-2 to the five-contact socket on front of shelter. Connect Cord CX-138/MRQ-2 to Terminal Strip TS-401 on Mounting FT-237-( ) as follows:

(1) At Interphone Control Box BC-606-( ).

Terminal No. 1—none	Terminal No. 6—red
Terminal No. 2—green	Terminal No. 7—none
Terminal No. 3—blue	Terminal No. 8—black
Terminal No. 4—none	Terminal No. 9—none
Terminal No. 5—none	Terminal No. 10—none

(2) At Terminal Strip TS-401 on Mounting FT-237-( ).

Terminal No. 1—white	Terminal No. 6—none
Terminal No. 2—none	Terminal No. 7—none
Terminal No. 3—red	Terminal No. 8—black
Terminal No. 4—none	Terminal No. 9—green
Terminal No. 5—none	Terminal No. 10—blue

d. Refer to TM 11-601 for detailed operating instruction for Radio Set SCR-828-A.

28. AUXILIARY EQUIPMENT AND WIRING.

a. The two circuit breakers on the left rear wall of the shelter must be closed or the equipment will not function.

b. The switch adjacent to the rear door is wired in parallel with the interlock switch. When the switch is in the ON position, the shelter lights will be on; when the switch is in the OFF position the lights will only stay on when the shelter rear door is closed.

c. Plug the fan and heater into the 115-volt a-c line and turn switches to ON and check for proper operation.

d. The d-c line activating Remote Control Units C-103/TRQ-1 is fused with a 30-ampere plug fuse in Fuse Box MX-154/MRQ-2. If units do not operate, check fuse and replace, if open. Overload protection for Radio Set SCR-828-A, which is powered by the same line, is provided by fuses located in the same fuse box.

29. OPERATION OF THE EQUIPMENTS.

a. Radio Receivers BC-342-( ), BC-344-( ), S-36, and BC-794. For specific operating instructions, see applicable TM 11-850-N, 850-N, 867, 866 respectively.

b. Remote Control Unit C-103/TRQ-1.

(1) To turn on remote control unit, plug in microphone.

(2) To communicate with the remote transmitter, place the control switch on TELEPHONE position and turn hand generator crank rapidly. Listen for reply and then push microphone switch on chest set to TALK.

(3) To transmit receiver output to remote transmitter operator, connect output of receiver to remote control unit using Cord CD-268. Remote operator will now hear received signals if volume is turned high enough.

(4) To permit the control central operator to key the remote transmitter, the remote transmitter operator is instructed to adjust the transmitter for that operation. The LINE REVERSE switch [par. 22c(16)] is now adjusted so that closing the key activates the relay which controls the remote transmitter. Remote control operation is now possible if the key is plugged into the remote control unit.

(5) To permit phone transmissions from the remote transmitter by the control central operator, the remote transmitter operator is instructed to adjust the transmitter for phone operation. The polarity-reversing switch is adjusted, as described above, for control central to take over transmitter operation. Closing and opening of a key will now permit the control central operator to turn the modulated transmitter on or off. The operators may now also voice modulate the remote transmitter. To monitor this type of transmission, only a headset may be used at control central. Loudspeaker monitoring in this application will cause violent feedback. Additional information on voice operation may be found in TM 11-281 as furnished with Radio Set AN/-MRQ-2.

30. OTHER EQUIPMENTS. Details on operation of the other equipments which are listed below and are used in Radio Control Central AN/-TRQ-1( ) may be found in the instruction books or technical manuals pertaining to them.

a. Radio Set SCR-828-A; TM 11-601.

b. Switchboard BD-72-( ); TM 11-330.

c. Frequency Meter Set SCR-211-( ); TM 11-300.

d. Power Unit PE-95-( );TM 11-904.

e. Battery charger; TM 11-2527.

31. ANTENNA COUPLING UNIT CU-23/TRQ-1. Connection of position 1, 2, and 4 radios to the antenna through the coupling unit will permit simultaneous operation of all three receivers without interaction between sets. The gain and selectivity of the individual receivers will not be affected by the use of the coupler.

32. TRANSMITTER COORDINATION. When Radio Control Central AN/TRQ-1 ( ) intercepts a signal on a frequency to which the remote transmitter is to be tuned, the control central operator informs the remote transmitter operator by telephone of the frequency settings on the intercept receiver dial. If more accurate determination is required, Frequency Meter Set SCR-211-( ) is used. The control central operator now transmits the output of his receiver over the telephone lines to the remote transmitter operator, who then tunes the transmitter master oscillator to zero beat with the received signal. When the zero beat signal condition is achieved, if the signal is c-w, the operator at the remote transmitter signals the control central to turn off the receiver-beat-frequency-oscillator, and checks the zero-beat setting. He then adjusts his transmitter for the type of modulation or c-w signal that is to be transmitted, and puts the transmitter under the control of the operator at Radio Control Sentral AN/TRQ-1( ).

33. OPERATING PRECAUTIONS.

a. When operations of remote control central are concluded, be sure to turn off both circuit breakers when leaving the shelter.

b. After observing precaution **a**, above, turn off Power Unit PE-95-( ).

c. When any of the Remote Control Units C-103/TRQ 1 are not in use, remove the microphone cords to eliminate unnecessary battery drain.

d. Do not charge battery with shelter door closed for long periods of time due to the accumulation of acid fumes which are dangerous to personnel and hard on equipment.

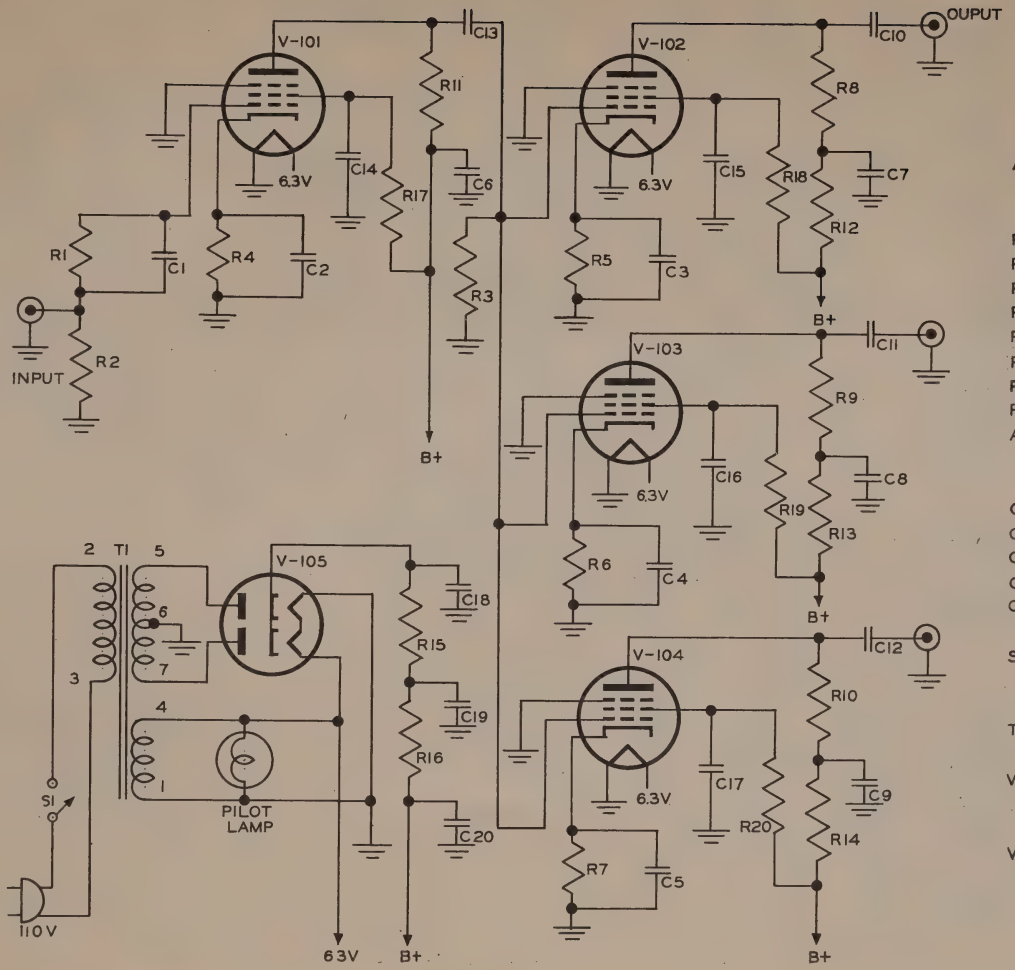
e. To prevent damage to mast sections and mast bases, do not attempt to move truck through woods or other areas with overhead obstructions while mast sections are installed.

f. Be sure Frequency Meter Set SCR-211-( ) and Radio Set SCR-828-A are turned off when not being used. This will eliminate excessive battery drain and consequent shortening of battery life.

SECTION III
FUNCTIONING OF PARTS

34. ANTENNA COUPLING UNIT. The Antenna Coupling Unit CU-23/TRQ-1 is a resistance-coupled video type amplifier (similar to type used in television units) which is designed to permit the operation of three radio receivers simultaneously, without any parasitic coupling effects between them. The coupling units use five tubes, four VT-112 (6AC7/1852) type pentode tubes and 1 type VT-126B (6X5GT) full-wave rectifier. Although, ideally, a 600-ohm input transmission line is recommended, an ordinary whip antenna or a single long wire antenna gives satisfactory results when connected to the input grid of one of the VT-112 tubes. An overload network, which consists of a 500-mmf capacitor connected in parallel with a 1-megohm resistor, is inserted across the input, effectively producing a large negative bias on the grid when a large input signal tends to drive the grid positive. The output of the first tube is capacitively coupled to the grids of the three isolating amplifier tubes which follow. The isolating amplifier tubes are so adjusted that they develop a low-plate impedance of approximately 150 ohms. The low impedance permits uniform gain over a wide frequency range (1.5 mc to 18 mc). Plate and screen voltages for the various circuits are provided by the output of the rectifier tube. The rectified output is filtered by three 8-mf capacitors and through the decoupling action of two 1,000-ohm resistors. The rectifier input voltage is 115-volt, 60-cycle ac. (fig. 14).

35. REMOTE CONTROL UNIT C-103/TRQ-1. The Remote Control Unit C-103/TRQ-1 provides a means for keying and controlling the modulated transmission of a remotely located transmitter. Power supply for the remote control unit is a 12-volt, heavy-duty, storage battery. A relay, key, and polarity-reversing switch comprise the basic components of the control unit. The relay offers high impedance to audio frequencies, and thus provides a means for controlling the transmitter



APPARATUS LEGEND

RESISTORS
R1 1 MEGOHM
R2-R3 560 OHMS
R4 220 OHMS
R5-R10 INC 150 OHMS
R11-R14 INC 1,000 OHMS
R15-R16 INC 1,000 OHMS
R17-R20 INC 68,000 OHMS
R15-R16 TWO WATT CAP.
ALL OTHERS 1/2 WATT

CONDENSERS
C1-510 MMF 500 WV
C2-C5 0.05 MF 400 WV
C6-C13 0.01 MF 500 WV
C14-C17 100 MMF 500 WV
C18-C20 10 MF 450 WV

S-1 ON-OFF SWITCH
3 AMPS-250 VOLTS

T-1 TRANSFORMER

V-101—V-104
JAN-6AC7 VT 112

V-105
JAN-6X5GT VT 126 B

TL 13267

Figure 14. Antenna coupling unit, schematic diagram.

without interfering with telephone operation (fig. 15).

36. RADIO RECEIVERS BC-342-( ), BC-344-( ), S-36, and BC-794. For a complete discussion on the detailed operation of the above receivers, refer to the technical manuals which are listed below:

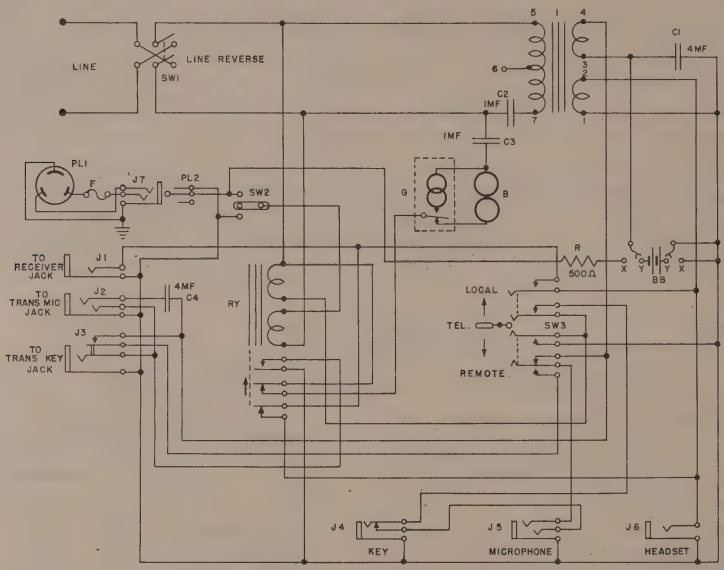
Radio Receiver BC-342-( )	TM 11-850-N
Radio Receiver BC-344-( )	TM 11-850-N
*Radio Receiver BC-787	TM 11-867
Radio Receiver BC-794	TM 11-866

*The information contained in TM 11-867 is also applicable to Radio Receiver S-36.

37. SWITCHBOARD BD-72-( ), RADIO SET SCR-828-A, AND FREQUENCY METER SET SCR-211-( ). For a complete discussion of the operation of the equipments listed above, refer to the technical manuals which are listed below:

Switchboard BD-72-( )	TM 11-330
Radio Set SCR-828-A	TM 11-601
Frequency Meter SCR-211-( )	TM 11-300

38. POWER SUPPLY PE-95-( ). For a complete discussion of the power supply, refer to TM 11-904.



NOTE:
POSITION X-X FOR EXTERNAL MIC BATTERY
POSITION Y-Y FOR INTERNAL MIC BATTERY

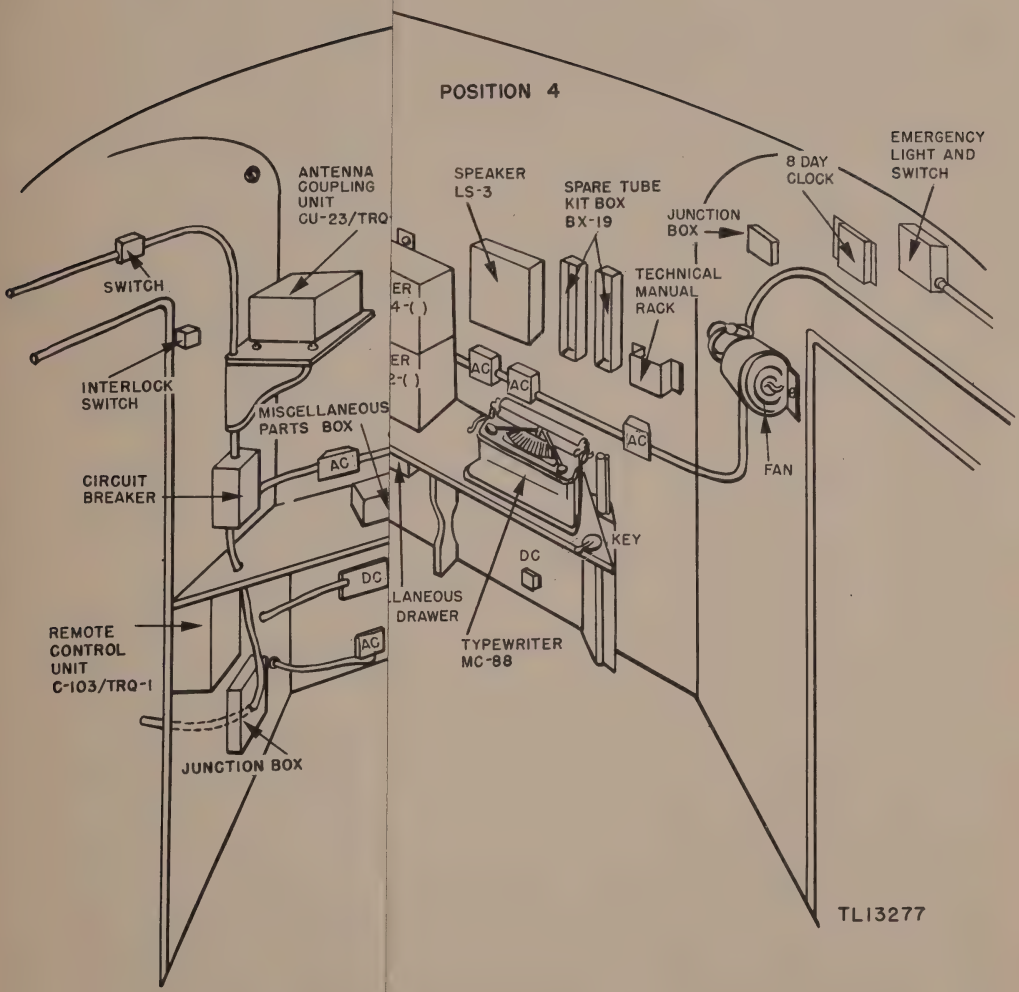
PARTS LIST

REF. NO.	DESCRIPTION
B	RINGER, BELL, TYPE MC-131, POLARIZED
BB	BATTERY, TYPE BA-27, 4½ VOLT
C1	CAPACITOR, TYPE CA-275, 4 MF 50 VOLT
C2	CAPACITOR, TYPE CA-389, 1 MF 600 VOLT
C3	CAPACITOR, TYPE CA-389, 1 MF 600 VOLT
C4	CAPACITOR, TYPE CA-275, 4 MF 50 VOLT
F	FUSE, SIZE 3AG, 2 AMP, 250 VOLT, TYPE FU-27
G	GENERATOR, HAND, TYPE GN-38
J1	JACK, TYPE JK-34A
J2	JACK, TYPE JK-33A
J3	JACK, YAXLEY NO. 3, OR EQUAL
J4	JACK, YAXLEY NO. 2A, OR EQUAL
J5	JACK, TYPE JK-33A
J6	JACK, TYPE JK-34A
J7	JACK, TYPE JK-33A

REF. NO.	DESCRIPTION
P1	PLUG, MALE, HUBBELL TWISTLOCK NO. 7556, OR EQUAL
PL2	PLUG, TYPE PL-68
R	RESISTOR, 500 OHM, 1 WATT, METAL FILM TYPE
RY	RELAY, CLARE TYPE A OR EQUAL, DOUBLE COIL, TOTAL RESISTANCE 60 OHMS, TOTAL INDUCTANCE 0.7 HENRIES, ONE TYPE A CONTACT AND TWO TYPE B CONTACTS.
SW1	SWITCH, DPDT, 3 AMP, 250 VOLT, TOGGLE, SINGLE HOLE MOUNTING TYPE
SW2	SWITCH, LINK AND SCREW TYPE
SW3	SWITCH, TELEPHONE LEVER TYPE, TWO THROW LOCKING, TOP PILES OF TWO TYPE A CONTACTS AND BOTTOM PILES OF ONE TYPE A AND ONE TYPE C CONTACTS, CHICAGO ELECTRIC OR EQUAL.
T	TRANSFORMER, TYPE C-280

TL 13268

Figure 15. Remote control unit, schematic diagram.


POSITION 4
ANTENNA COUPLING UNIT CU-23/TRQ
SPEAKER LS-3
SPARE TUBE KIT BOX BX-19
8 DAY CLOCK
EMERGENCY LIGHT AND SWITCH
JUNCTION BOX
TECHNICAL MANUAL RACK
SWITCH
INTERLOCK SWITCH
MISCELLANEOUS PARTS BOX
CIRCUIT BREAKER
AC
DC
FAN
KEY
REMOTE CONTROL UNIT C-103/TRQ-1
TYPEWRITER MC-88
JUNCTION BOX
TL13277

without interfering with telephone operation (fig. 15).

36. RADIO RECEIVERS BC-342-( ), BC-344-( ), S-36, and BC-794. For a complete discussion on the detailed operation of the above receivers, refer to the technical manuals which are listed below:

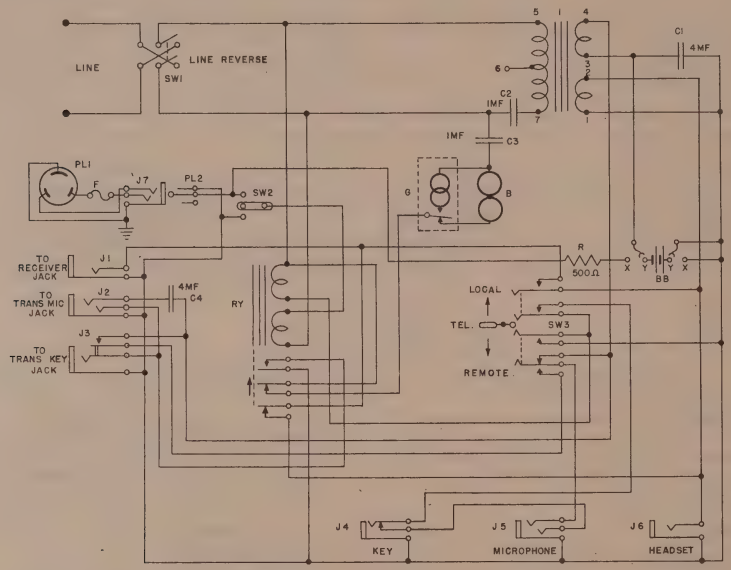
Radio Receiver BC-342-( )	TM 11-850-N
Radio Receiver BC-344-( )	TM 11-850-N
*Radio Receiver BC-787	TM 11-867
Radio Receiver BC-794	TM 11-866

*The information contained in TM 11-867 is also applicable to Radio Receiver S-36.

37. SWITCHBOARD BD-72-( ), RADIO SET SCR-828-A, AND FREQUENCY METER SET SCR-211-( ). For a complete discussion of the operation of the equipments listed above, refer to the technical manuals which are listed below:

Switchboard BD-72-( )	TM 11-330
Radio Set SCR-828-A	TM 11-601
Frequency Meter SCR-211-( )	TM 11-300

38. POWER SUPPLY PE-95-( ). For a complete discussion of the power supply, refer to TM 11-904.



NOTE:
POSITION X-X FOR EXTERNAL MIC BATTERY
POSITION Y-Y FOR INTERNAL MIC BATTERY

PARTS LIST

REF. NO.	DESCRIPTION
B	RINGER, BELL, TYPE MC-131, POLARIZED
BB	BATTERY, TYPE BA-27, 4½ VOLT
C1	CAPACITOR, TYPE CA-275, 4 MF 50 VOLT
C2	CAPACITOR, TYPE CA-389, 1 MF 600 VOLT
C3	CAPACITOR, TYPE CA-389, 1 MF 600 VOLT
C4	CAPACITOR, TYPE CA-275, 4 MF 50 VOLT
F	FUSE, SIZE 3AG, 2 AMP, 250 VOLT, TYPE FU-27
G	GENERATOR, HAND, TYPE GN-38
J1	JACK, TYPE JK-34A
J2	JACK, TYPE JK-33A
J3	JACK, YAXLEY NO. 3, OR EQUAL
J4	JACK, YAXLEY NO. 2A, OR EQUAL
J5	JACK, TYPE JK-33A
J6	JACK, TYPE JK-34A
J7	JACK, TYPE JK-33A

REF. NO.	DESCRIPTION
PL1	PLUG, MALE, HUBBELL TWISTLOCK NO. 7556, OR EQUAL
PL2	PLUG, TYPE PL-68
R	RESISTOR, 500 OHM, 1 WATT, METAL FILM TYPE
RY	RELAY, CLARE TYPE A OR EQUAL, DOUBLE COIL, TOTAL RESISTANCE 60 OHMS, TOTAL INDUCTANCE 0.7 HENRIES, ONE TYPE A CONTACT AND TWO TYPE B CONTACTS.
SW1	SWITCH, DPDT, 3 AMP, 250 VOLT, TOGGLE, SINGLE HOLE MOUNTING TYPE
SW2	SWITCH, LINK AND SCREW TYPE
SW3	SWITCH, TELEPHONE LEVER TYPE, TWO THROW LOCKING, TOP PILES OF TWO TYPE A CONTACTS AND BOTTOM PILES OF ONE TYPE A AND ONE TYPE C CONTACTS, CHICAGO ELECTRIC OR EQUAL.
T	TRANSFORMER, TYPE C-280

TL 13268

Figure 15. Remote control unit, schematic diagram.

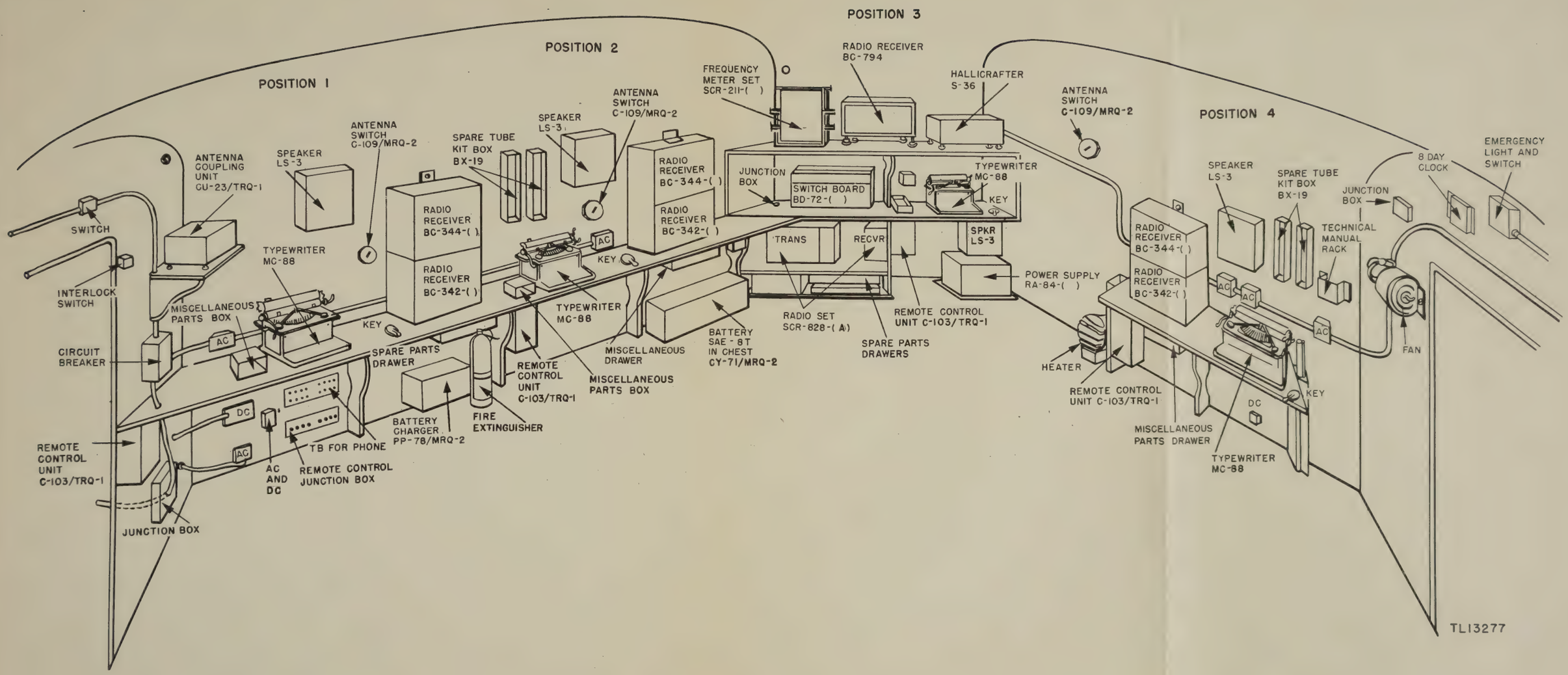


Figure 16. Interior layout, specific part location.

SECTION IV
MAINTENANCE

NOTE: Unsatisfactory performance of this equipment will be reported immediately on W. D., A. G. O. Form No. 468. If Form No. 468 is not available see TM 38-250.

39. INSPECTION.

a. General. To insure reliable and proper continuous operation of Radio Control Central AN/-TRQ-1( ) its major components must be inspected regularly. Familiarity with the equipments may be obtained not only by frequent operation, but also by continued reference to the technical manuals and instruction books written about the various components. These are as follows:

(1) TM 11-850, Radio Receivers BC-312-( ), BC-312-( )X, BC-342-( ), BC-314-( ), and BC-344-( ).

(2) TM 11-866, Radio Receiver BC-794.

(3) TM 11-867, Radio Receiver BC-787.

(4) TM 11-904, Power Units PE-95-(*).

(5) TM 11-601, Radio Set SCR-808 and SCR-828.

(6) TM 11-330, Switchboards BD-71 and BD-72, and BD-72-B.

(7) TM 11-300, Frequency Meter Sets SCR-211-( ).

b. Routine Inspection Checks.

(1) Check oil, water, anti-freeze, and gasoline of Power Unit PE-95-( ) every 24 hours. Change oil at regular periods.

(2) Check the power cable between power unit and shelter.

(3) Replace all defective lamps in truck and trailer, tail lights, head lights, etc.

(4) Check Frequency Meter Set SCR-211-( ) batteries regularly. Check storage batteries in Shelter HO-17-( ) and Power Unit PE-95-( ). Charge, clean, and add water when necessary.

(5) Check standard equipment as per maintenance suggestions in applicable instruction book and technical manuals.

(6) Check and maintain Antenna Coupling Unit CU-23/TRQ-1 and Remote Control Unit C-103/TRQ-1 as per drawings referred to in paragraph 39a (10).

(7) Use Tool Set TE-41 for minor repairs. Major repairs should only be undertaken by qualified personnel of the fourth and fifth echelons, with proper and adequate test equipment.

(8) Look for frayed conductors which may cause intermittent or unreliable operation.

(9) Look for broken conductors which may cause equipment shut-down.

(10) Inspect closely for chafed insulation which can cause short circuits between conductors.

(11) Look for moisture between contact prongs of plugs which may cause short circuits.

(12) Replace any cables or plugs broken by rough handling.

(13) Be careful to keep oil, gasoline, acid, and other harmful material away from wiring and insulation.

40. TROUBLE ISOLATION (figs. 16, 17, 18, and 19).

a. When trouble occurs in the equipment, track the trouble down to a single unit in the equipment. This is easily done because it is obvious that all trouble may be set into one of the following categories.

(1) Failure of a single unit or of the entire system which is supplied by Power Unit PE-95-( ).

(2) Failure of a single unit or of all equipment, storage-battery supplied.

(3) Failure of any equipment operated by dry batteries.

(4) Failure of antenna equipment.

b. The trouble break-down analysis may be carried a step further as follows:

(1) Complete failure of *all* power-supply-operated equipment can only be due to one of the following:

(*a*) Defective Power Unit PE-95-( ).

(*b*) Defective power cable between Shelter HO-17-( ) and Trailer K-52-E.

(*c*) Defective or tripped circuit breaker. If tripped, look further for source of trouble.

(2) Complete failure of all 12-volt storage-battery-operated units can only be due to one of the following:

(*a*) Defective battery.

(*b*) Defective battery connections.

(*c*) Defective cabling

(3) Complete failure of any dry-battery-operated unit can only be due to one of the following:

(*a*) Internal circuit trouble.

(*b*) Dead batteries.

(*c*) Defective cabling.

(4) Trouble in antenna equipment will manifest itself in one of the following ways:

(*a*) Weak signal in the equipment served by a particular antenna.

(*b*) Noisy reception on equipment served by a particular antenna.

(*c*) Intermittent reception in equipment served by a particular antenna.

(*d*) Weak or complete failure of reception in equipments served by Antenna Coupling Unit CU-23/TRQ-1, if coupler is at fault.

c. Using the above data, trouble isolation to a single unit should be relatively simple. An information chart and a trouble chart which further facilitate trouble isolation are indicated below.

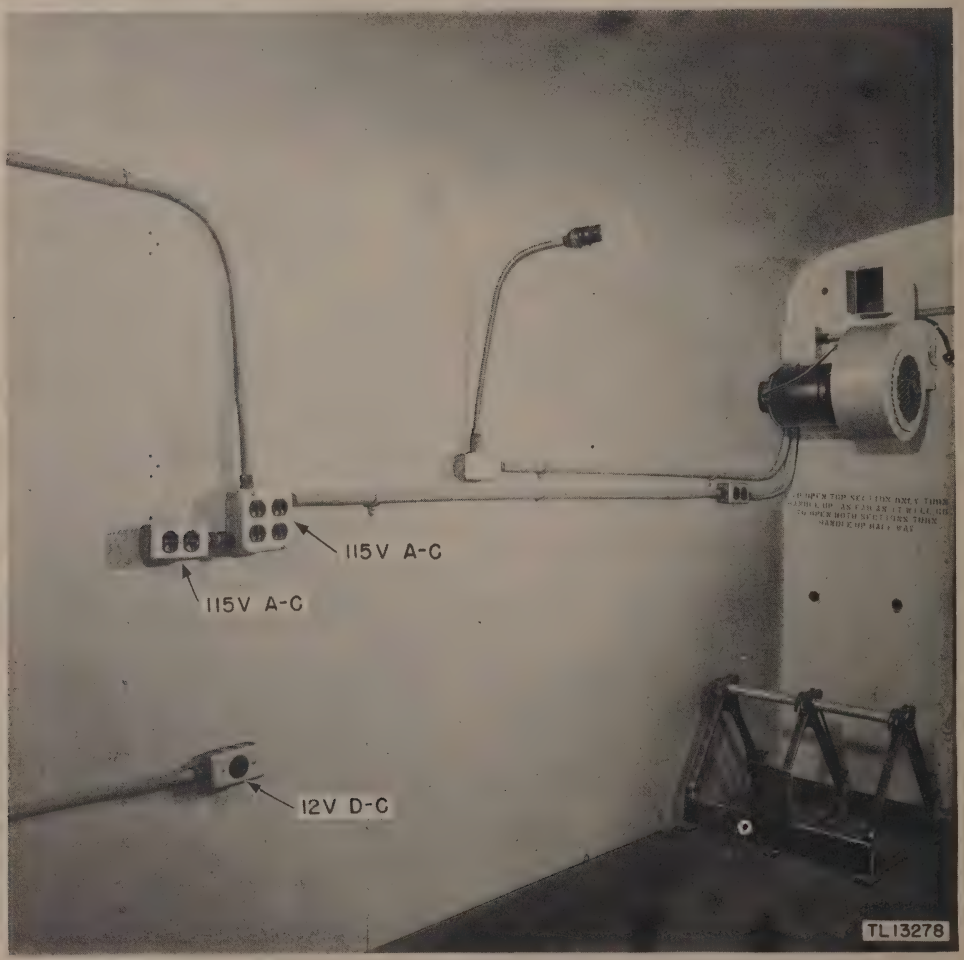


Figure 17. Interior layout, cabling layout, right side.

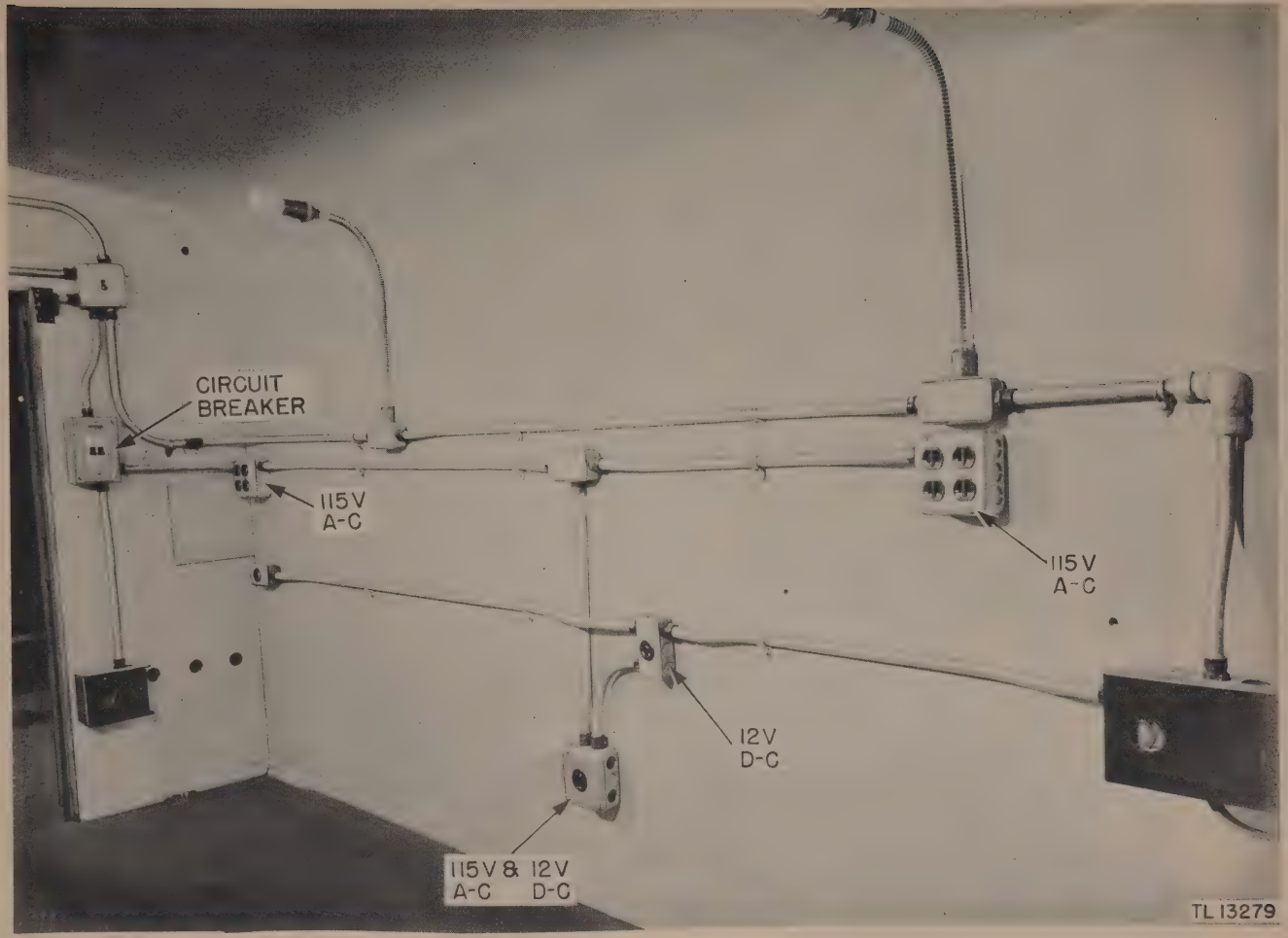


Figure 18. Interior layout, cabling layout, left side.

Figure 19. Interior layout, cabling layout, front view.

INFORMATION CHART

NOTE: All positions indicated looking from rear towards front of truck.

Par. 41.

Unit	*Power source*	*Antenna coupling*	*Antenna*	*Location*
Radio Receiver BC-342-( )	Power Unit PE-95-( )	Yes	Rear left side	Position 1, 2, 4.
Radio Receiver BC-344-( )	Power Unit PE-95-( )	Yes	Rear left side	Position 1, 2, 4.
Radio Receiver BC-794	Power Unit PE-95-( )		Rear right side	Position 3.
Radio Receiver S-36	Power Unit PE-95-( )		Rear right side	Position 3.
Radio Set SCR-828-A	12-v storage battery		Front left center	Position 3.
Switchboard BD-72-( )	Self-contained dry battery			Position 3.
Remote Control Unit C103/TRQ-1	12-v storage battery			All positions.
Antenna Coupling Unit CU-23/TRQ-1	Power Unit PE-95-( )		Rear left side	Above and to left of position 1.
Frequency Meter Set SCR-211-( )	Self-contained batteries			Position 3.
Power Unit PE-95-( )				On Trailer K-52-E.
Typewriter MC-88				All positions.
Fan	Power Unit PE-95-( )			Right of rear door upon entry.
Heater	Power Unit PE-95-( )			Floor to left of position 4.
Speaker LS-3	Radio			All positions.
Circuit breaker	Power Unit PE-95-( )			Left of rear door upon entry.
Interlock switch	Power Unit PE-95-( )			Left of door at entrance.
Battery SAE-8T				On floor, position 2.
Charger	Power Unit PE-95-( )			On floor, position 1.
Longine-Wittnauer clock	Self-wind			On wall above door.

TROUBLE CHART

Par. 42.

Symptom	*Probable cause*	*Remedy*
All electrically-powered equipment, in all positions inoperative.	Power failure.	Check circuit breaker, cabling between Shelter HO-17-( ) and Power Unit PE-95-( ) (as per TM on power supply).
All battery-powered equipment inoperative.	Battery failure.	Check battery connections; battery wiring to battery.
Weak signal, all positions, all equipments.	Poor location.	Move to new location.
Weak signals on all receivers in position 1, 2, and 4.	Antenna assembly.	Check antenna, cables, connectors, antenna switches, and antenna coupling unit. Clip on and try Antenna AS-93/MRQ-2.
Weak signals in position 3, both receivers.	Antenna assembly.	Check antenna, cables, antenna switch, and connectors.
Weak signals in positions 1, 2, and 4, single receiver, other receiver normal.	1. Internal failure. 2. Cabling or antenna switch. 3. Speaker or headset.	1. See TM 11-850-N. 2. Check cabling, connectors, and antenna switch. 3. Check. Replace if defective.
Weak signals in position 3, single receiver, other receivers normal.	1. Internal failure. 2. Cables. 3. Antenna switch. 4. Poor battery connection.	1. See applicable TM. 2. Check cabling. 3. Check antenna switch. 4. Check battery, battery connections.
Improper operation of remote control unit and transmitter.	Weak battery.	1. Check battery. Place on charge or replace. 2. Check cabling to batteries and connections at battery. 3. Try alternate position of LINE REVERSE switch on remote control unit. 4. Rectify trouble at other end.
Remote control unit and transmitter inoperative.	Power failure.	1. Check polarized plugs, cabling connectors, and 12-volt battery. 2. Rectify trouble at other end.
Transmitter operation not satisfactory.	1. Power failure. 2. Antenna assembly.	1. Check connectors, cable battery connection, battery. 2. Check antenna cable and connectors. 3. Try alternate position of LINE REVERSE switch on remote control unit. 4. Rectify trouble at other end.

TROUBLE CHART (cont.)

Symptom	*Probable cause*	*Remedy*
Improper operation of all Remote Control Units C-103/TRQ-1.	Power failure.	Check 12-volt battery, battery cabling, connectors.
Improper operation, single Remote Control Unit C-103/TRQ-1.	1. Internal failure. 2. Power failure.	1. See applicable TM. 2. Check cabling and connectors to battery supply.
Frequency Meter Set SCR-211-( ) operation unsatisfactory	1. Internal failure. 2. Power failure.	1. See applicable TM. 2. Check self-contained batteries.
Switchboard BD-72-( ) operation unsatisfactory.	1. Internal failure. 2. Power failure. 3. Outside wiring failure.	1. See applicable TM. 2. Check self-contained batteries. 3. See applicable TM.
Inoperative Antenna Coupling Unit CU-23/TRQ-1.	1. Internal failure. 2. Power failure.	1. See paragraph 34. 2. Check cabling, connectors, outlets. NOTE: In emergency connect antenna directly to set. 3. Check tubes in antenna coupler.
Extraneous noise, all receivers.	1. Poor location. 2. Man-made static. 3. Power line intermittent or improperly filtered.	1. Change location. 2. Locate noise source and remedy it. 3. Check line connectors, grounded connections, noise elimination system.
Noise in position 1, 2, and 4 receivers.	1. Antenna assembly. 2. Antenna Coupling Unit, CU-23/TRQ-1. 3. Antenna switch.	1. Check antenna, connectors, cabling. 2. See trouble chart on Antenna Coupling Unit CU-23/TRQ-1. 3. Check antenna switch.
Noise in position 3 receivers.	1. Antenna assembly. 2. Power failure. 3. Headset (leads). 4. Antenna switch.	1. Check antenna, connectors, and cabling. 2. Check outlet connectors, connections, cabling, battery connection from receiver of Radio Set SCR-828-A 3. Replace headset with pair known to be in good order.
Noise on individual set in positions 1, 2, and 4.	1. Antenna switch. 2. Poor cabling. 3. Internal failure. 4. Bad outlet connection.	1. Check antenna switch 2. Check cabling. 3. See applicable TM. 4. Check plug and outlet connections.

TROUBLE CHART (cont.)

Symptom	*Probable cause*	*Remedy*
Noise on individual set in position 3.	Same as above.	Same as above.
Circuit breaker continues opening. Throws power off.	1. Low-resistance short. 2. Overload on line. 3. Component unit drawing excessive current.	1. Check power wiring. 2. Check and ascertain which unit is drawing excessive current by removing one plug at a time.
Transmitter output low.	1. Internal failure. 2. Antenna assembly not loading transmitter properly. 3. Storage battery weak or defective.	1. See applicable TM. 2. Check antenna, connectors, and cabling. 3. Check storage battery for dead cell or low charge.
Noisy switchboard operation.	1. Internal switchboard failure. 2. Defective cabling. 3. Weak or noisy batteries.	1. See applicable TM. 2. Check cabling and connectors for poor joints. 3. Replace weak or noisy batteries.
Noisy remote control in one position.	1. Internal failure. 2. Bad cabling.	1. See applicable TM. 2. Check cabling and connectors.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( )

Ref symbol	*Signal Corps stock No.*	*Name of part and description*	*Quan per unit*	*Running spares*	*Orgn stock*	*3d ech*	*4th ech*	*5th ech*	*Depot stock*
	2A264-93	ANTENNA ASSEMBLY AS-93/MRQ-2.	1				*	*	*
	3C472-23	ANTENNA COUPLING UNIT CU-23-( )/TRQ-1.	1				*	*	*
	6H227	AXLE RL-27-B: (for Frame FM-59-( )).	1						*
	3B221	BATTERY: storage; vehicular; 12-v; SAE 8T.	1				*	*	*
	2Z1119	BOX BX-19-A: (for running spare receiving tubes, fuses, and lamps).	4						*
	2C1738	BOX C-109/MRQ-2: antenna control.	4			*	*	*	*
	3H229-78	CHARGER PP-78-( )/MRQ-2: battery; RCP-16, Radio Controls Inc., or equal.	1						*
	4B420-19	CHEST UNIT H-19-( )/U: WED-173249, or equal.	4	1		*	*	*	*
	2C1738	CONTROL BOX BC-606-( ): interphone.	1			*	*	*	*
	2Z2499-71	CHEST CY-71/MRQ-2: battery.	1						*
	2Z1305-1	CLAMP: ground; with braid assembly for grounding Shelter HO-17 (mobile to truck); Hallicrafter DO61.	1		*	*	*	*	*
	2Z1958	CLOCK: Longines-Wittnauer A-6, or equal.	1			*	*	*	*
	3E3100-120	CORD: 10'; single-conductor; approx. No. 7 AWG copper braid; for ground connection to Stake GP-16.	2		*	*	*	*	*
	3E1201	CORD CD-201: (for Key J-41).	4		*	*	*	*	*
	3E1307A	CORD CD-307-A: (headset extension).	4	2		*	*	*	*
	3E1318	CORD CD-318-A: (microphone connection).	1	2	*	*	*	*	*
	3E1370	CORD CD-370: (connects Receivers BC-342-( ) and BC-344-( ) to a-c power outlet).	6		*	*	*	*	*
	1F430-62	CORD CG-62/TRQ-1: 3'; (connects Radio Receiver BC-794-( ) and Hallicrafter S-36 to Antenna Control Box C-109/MRQ-2).	2		*	*	*	*	*
	1F430-67	CORD CG-67/MRQ-2: 15'; (connects Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23-( )/TRQ-1).	1		*	*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	1F430-62	CORD CG-62/TRQ-1: 8′; (connects Mounting FT-237-( ) to Mast Base MP-48-A.	1		*	*	*	*	*
	1F430-67	CORD CG-67/MRQ-2: 15′; (connects Antenna Control Box C-109/MRQ-2 to Mast Base MP-48-A)	1		*	*	*	*	*
	1F430-67	CORD CG-67/MRQ-2: 8′; (connects Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23-( )/TRQ-1).	1		*	*	*	*	*
	3E1268	CORD CD-268: (connects radio receivers to Remote Control Unit C-103-( )/TRQ-1).	4		*	*	*	*	*
	1F430-67	CORD CG-67/MRQ-2: 3′; (connects Antenna Control Box C-109/MRQ-2 to Antenna Coupling Unit CU-23-( )/TRQ-1).	1		*	*	*	*	*
	1F430-67	CORD CG-67/MRQ-2: 2′ 6″; connects Mast Base MP-48-A to Antenna Coupling Unit CU-23-( )/TRQ-1.	1		*	*	*	*	*
	1F430-68	CORD CG-68/MRQ-2: 2′; (connects Radio Receivers BC-342-( ) and BC-344-( ) to Antenna Control Box C-109/MRQ-2).	6		*	*	*	*	*
	3E6000-132.60	CORD CX-132/TRQ-1: 5′; (connects Radio Receiver BC-342-( ) or BC-344-( ) to Loudspeaker LS-3).	3		*	*	*	*	*
	3E6000-138	CORD CX-138/MRQ-2: connects Mounting FT-237-( ) to Cord CX-139/MRQ-2.	1		*	*	*	*	*
	3E6000-139	CORD CX-139/MRQ-2: connects Interphone Control Box BC-606-( ) to Cord CX-138/MRQ-2.	1		*	*	*	*	*
	3E6000-142	CORD CX-142/MRQ-2: connects Battery Charger PP-78-( )/MRQ-2 to d-c, a-c junction box.	1		*	*	*	*	*
	3E6000-144-60	CORD CX-144/TRQ-1: 5′; (connects Hallicrafters S-36 receiver, or equal, to Loudspeaker LS-3).	1		*	*	*	*	*
	3E6000-144-108	CORD CX-144/TRQ-1: 9′; (connects Radio Receiver BC-794-( ) to Loudspeaker LS-3).	1		*	*	*	*	*
	3E6000-269	CORD CX-269/U: (connects Remote Control Unit C-103-( )/TRQ-1 to d-c junction box).	4		*	*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	3H1664A	DYNAMOTOR DM-64-A: (for Radio Receiver BC-923-( )).	1			*	*	*	*
	3H1664/B10	BRUSH: low-voltage; with spring, pigtail, and cap assembled; Wincharger dwgs A-5195 and A-5195-1.	2	2			*	*	*
	3H1664/B11	BRUSH: high-voltage; with spring, pigtail, and cap assembled; Wincharger dwgs A-5196 and A-5196-1.	2	2			*	*	*
	3DKA10-197.1	CAPACITOR: mica; filter; 10,000 mmf.	2			*	*	*	*
	2Z8688.5	CONNECTOR: female, straight; Jones S-318-AB.	1			*	*	*	*
	3H1665A	DYNAMOTOR DM-65-A: (for Radio Transmitter BC-924-( )).	1			*	*	*	*
	3H1665A/B10	BRUSH: low-voltage; with spring, pigtail, and cap assembled; Wincharger dwg A-5816.	2	2			*	*	*
	3H1665/B11	BRUSH: high-voltage; with spring, pigtail, and cap assembled; Wincharger dwgs 5864 and A-5864-1.	2	2			*	*	*
	3DA5-18	CAPACITOR: mica; filter; 5,000-mmf; Cornell Dubilier.	4			*	*	*	*
	2Z7403-3	CONNECTOR: female; straight; Jones S-312-AB.	1			*	*	*	*
	6Z3785	EXTINGUISHER: 4-lb; carbon-dioxide; model FF-4; Randolph Laboratories, Chicago, Ill., or equal, (with mounting).	1				*	*	*
	2Z4659	FRAME FM-59-( ): for 2 Reels DR-4.	1			*	*	*	*
	2C1411.5	FREQUENCY METER SET SCR-211-( ).	1			*	*	*	*
	3Z2030	FUSE: plug; 30-amp; 125-v.	2	5	*	*	*	*	*
	3Z2853-154	FUSE BOX MX-154/MRQ-2.	1						*
	2B833	HEADSET HS-33.	4	2		*	*	*	*
	4A985	HEADSET ADAPTER MC-385-( ): (for Headset HS-33).	4	2	*	*	*	*	*
	2Z5020	HEATER: electric; 1,500-w; 115-v; Model No. AA-15; Electric Air Heater Co., or equal.	1				*	*	*
	3Z3441	KEY J-41.	4			*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	3Z3445	KEY J-45.	2			*	*	*	*
	6Z6815-13	LAMP: screw base; 50-w; 115-v (for emergency light and lamp fixtures).	6	6		*	*	*	*
	6Z6898	LAMP: trouble; 12-v dc; with 25' extension cord; Hubbell 7572 or equal.	1			*	*	*	*
	6Z6812-7	LAMP: screw base; 12-v; 50-w; GE 50A, or equal.	1	2		*	*	*	*
	6Q63521	LINEMAN'S EQUIPMENT TE-21.	1						*
	2Z6303.1	LOUDSPEAKER LS-3.	4			*	*	*	*
	2A2088-48A	MAST BASE MP-48-A.	3						*
	2A2090-50	BRACKET MP-50: mast base.	3						*
	2A2349	MAST SECTION MS-49.	7	3	*	*	*	*	*
	2A2350	MAST SECTION MS-50.	7	4	*	*	*	*	*
	2A2351	MAST SECTION MS-51.	7	4	*	*	*	*	*
	2A2352	MAST SECTION MS-52.	7	4	*	*	*	*	*
	2A2353	MAST SECTION MS-53.	7	6	*	*	*	*	*
	2A2354	MAST SECTION MS-54.	7	3	*	*	*	*	*
	2B1617	MICROPHONE T-17.	2			*	*	*	*
	2B1645	MICROPHONE T-45.	2			*	*	*	*
	2Z6721-237	MOUNTING FT-237-( ).	1						*
	2Z6718	MOUNTING FT-178: (for Radio Sets BC-342-( ) and BC-344-( )).	6				*	*	*
	3H4496-84	POWER SUPPLY UNIT RA-84-( ).	1			*	*	*	*
	2C4342	RADIO RECEIVER BC-342-( ).	3			*	*	*	*
	2C4344	RADIO RECEIVER BC-344-( ).	3			*	*	*	*
	2C4537-36.1	RADIO RECEIVER: 27.8-mc—143-mc; Hallicrafters S-36.	1			*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2C4794	RADIO RECEIVER BC-794-( ).	1			*	*	*	*
	2C4923	RADIO RECEIVER BC-923-( ).	1			*	*	*	*
	2C6596-924	RADIO TRANSMITTER BC-924-( ).	1			*	*	*	*
	2C684-103	REMOTE CONTROL UNIT C-103-( )/TRQ-1.	4			*	*	*	*
	6Z7926	ROPE RP-5.	1			*	*	*	*
	3Z7700-17	SHELTER HO-17.	1						*
	2Z2708.17	SPRING CLIP: (for Interphone Control Box BC-606-( )).	1		*	*	*	*	*
	5B4416	STAKE GP-16: (for grounding connections).	1		*	*	*	*	*
	4C9972	SWITCHBOARD BD-72: (telephone).	1				*	*	*
	6D13025	TECHNICAL MANUAL TM11-601: (for Radio Sets SCR-808-( ) and SCR-828-( )).	2						*
	6R38041	TOOL EQUIPMENT TE-41.	1						*
	6J952	TRAILER K-52-( ).	1						*
	6M1688	TYPEWRITER MC-88: (complete with cover).	4				*	*	*
	1A28	WIRE: antenna; stranded; enameled; No. 12 B&S gauge; Belden, or equal; (100′ coil).	1		*	*	*	*	*
	1B110B.1	WIRE W-110-B: (on 2 Reels DR-4; 1/2 mile on each reel).	2			*	*	*	*
	6Z815	BASE.	1			*	*	*	*
	3Z246	BINDING POST TM-146.	2			*	*	*	*
	6Z1735	CAP.	1			*	*	*	*
	6Z23151	CONNECTOR: body.	1			*	*	*	*
	3E2130	CORDAGE CO-130.	1			*	*	*	*
	6Z815	RECEPTACLE: twist-lock; Hubbell No. 7466.	1			*	*	*	*
	6Z1727.1	PLUG: polarized; Hubbell No. 7059.	1			*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

a. Remote Control Unit C-103-( )/TRQ-1

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
R	3Z6050-63	RESISTOR: fixed; carbon; 500-ohm ± 10%; 1-w; Erie type; (bakelite insulation; 13/16″ long x 5/16″ diam; axial wire leads, 1-1/2″ long).	1			*	*	*	*
C1 C4	3DB4-139	CAPACITOR: fixed; paper; 4-mf ± 10%; 50 v dc (working); Micamold type CA275; (hermetically sealed; mineral oil impregnated; metal can, 2-3/4″ long x 2-7/16″ wide x 1″ thick; 2 terminals spaced 1″ apart; 2 mounting feet with 3/16″ hole; mounting center 2-3/8″).	2			*	*	*	*
C2 C3	3DB1.389	CAPACITOR: fixed; paper; 1-mf; 600 v dc (working); Micamold type CA389; (hermetically sealed; mineral oil impregnated; metal can, 2-3/4″ long x 2-3/16″ wide x 11/16″ thick; 2 terminals spaced 1″ apart; 2 mounting feet with 3/16″ hole; mounting center 2-3/8″).	2			*	*	*	*
S1	3ZK9845-19	SWITCH: toggle; Cutler-Hammer 8803-K3; (SPST; 3-amp; 250-v; bakelite body; over-all dimensions, 1-1/8″ long x 5/8″ wide x 1/2″ long; bushing 15/32″ diam).	1			*	*	*	*
SW1	3Z9849.60-1	SWITCH: toggle; Cutler-Hammer 8825-K4; (DPDT; 3-amp; 250-v; bakelite body; over-all dimensions, 1-5/16″ long x 3/4″ wide x 1/2″ long; bushing 15/32″ diam).	1			*	*	*	*
	4B3371	RINGER MC-131: polarized; Bell.	1				*	*	*
	3A27	BATTERY BA-27: 4-1/2-v.	1			*	*	*	*
	3Z1927	FUSE FU-27: cartridge, 2-amp; 250-v; Littelfuse size 3AG; (1-1/4″ long, 1/4″ diam).	1			*	*	*	*
	4B838	GENERATOR GN-38: (hand).	1				*	*	*
J1 J6	2Z5534-A	JACK JK-34-A; single-contact; (over-all size 1-1/8″ x 5/16″ diam).	2				*	*	*
J2 J5	2Z5533-A	JACK JK-33-A; two-contact; (over-all size 1-1/4″ x 1″ diam).	2				*	*	*
J3	2Z5572-12	JACK: single-contact, with set of normally open contacts operated by main contact bushing.	1				*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

a. Remote Control Unit C-103-( )/TRQ-1 (cont.)

Ref symbol	*Signal Corps stock No.*	*Name of part and description*	*Quan per unit*	*Running spares*	*Orgn stock*	*3d ech*	*4th ech*	*5th ech*	*Depot stock*
J4	2Z5540	JACK: one set of normally closed contacts.	1				*	*	*
PL1	6Z7813-2	PLUG: male; Hubbell twistlock; (2-5/16″ x 1-3/4″ x 1-1/8″ diam).	1			*	*	*	*
RY	2Z7588-55	RELAY: double-coil; (30-ohm coils; one set type-A contacts and two sets type-3 contacts; 4-3/16″ x 1-3/16″ x 1-9/16″).	1				*	*	*
SW2	2Z1239.27/1	SWITCH: link and screw type; (2-11/16″ x 7/8″ x 3/8″).	1				*	*	*
SW3	3Z9580-17	SWITCH: telephone lever type; (DT locking; top piles of two type-A contacts, and bottom piles of one type-A and one type-C contact; Chicago Electric; 3-3/4″ x 1-1/4″ x 1/2″).	1				*	*	*
	2Z9880	TRANSFORMER: type C-280; (2-1/2″ x 1-7/8″ x 2-1/2″).	1			*	*	*	*
	3Z3275	FUSE HOLDER: cartridge; Littelfuse type 1075; (2-1/2″ long x 11/16″ diam).	1				*	*	*
	2Z3352.50	JACK COVERS: Crowe nameplate No. 3501; (3/8″ mounting hole; 3/4″ x 5/8″ x 1/4″).	6			*	*	*	*
	b. Antenna Coupling Unit CU-23-( )/TRQ-1								
R1	3ZK6801-59	RESISTOR: fixed; carbon; 1-meg ± 10%; 1/2-w; Erie type; (bakelite insulation 7/16″ long x 7/32″ diam; axial wire leads, 1-1/2″ long).	1			*	*	*	*
R2 R3	3Z6056-17	RESISTOR: fixed; carbon; 560-ohm ± 10%; 1/2-w; Erie type; (bakelite insulation 7/16″ long x 7/32″ diam; axial wire leads, 1-1/2″ long).	2			*	*	*	*
R4	3Z6022-12	RESISTOR: fixed; carbon; 220-ohm ± 10%; 1/2-w; Stackpole type; (bakelite insulation; 7/16″ long x 7/32″ diam; axial wire lead, 1-1/2″ long).	1			*	*	*	*
R5 R6 R7 R8 R9 R10	3Z6015-11	RESISTOR: fixed; carbon; 150-ohm ± 10%; 1/2-w; Allen-Bradley type EB; (bakelite insulation; 1/2″ long x 1/8″ diam axial wire leads, 1-1/2″ long).	6			*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

b. Antenna Coupling Unit CU-23-( )/TRQ-1 (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
R11 R12 R13 R14	3Z4567	RESISTOR: fixed; carbon; 1,000-ohm ± 10%; 1/2w; Erie type; (bakelite insulation; 7/16" long x 7/32" diam; axial wire leads, 1-1/2" long).	4			*	*	*	*
R15 R16	3Z6100-39	RESISTOR: fixed; carbon; 1,000-ohm ± 10%; 2-w; IRC type BT-2; (bakelite insulation 1-3/4" long x 5/16" diam; axial wire leads, 1-1/2" long).	2			*	*	*	*
R17 R18 R19 R20	3Z66683	RESISTOR: fixed; carbon; 68,000-ohm ± 10%; 1/2-w; Erie type; (bakelite insulation; 7/16" long x 7/32" diam; axial wire leads, 1-1/2" long).	4			*	*	*	*
C1	3K2051122	CAPACITOR: fixed; mica; 510-mmf ± 10%; 500 v dc (working); Sangamo type CM20B511K; (bakelite insulation; 25/32" long x 7/16" wide x 7/32" thick; axial wire leads, 1-1/4" long).	1			*	*	*	*
C2 C3 C4 C5	3DA50-113.2	CAPACITOR: fixed; paper; 50,000-mmf ± 10%; 600 v dc (working); Solar type XTM; (hermetically sealed mineral oil impregnation; metal can, 1-5/16" long x 3/4" diam; axial wire leads, 2" long).	4			*	*	*	*
C6 C7 C8 C9 C10 C11 C12 C13	3K3551222	CAPACITOR: fixed; mica; 10,000-mmf ± 10% (two 5,000-mmf ± 10%, in parallel); Sangamo type CM35B512K; (bakelite insulation; 13/16" long x 13/16" wide x 5/16" thick; axial wire leads, 1-1/4" long).	8			*	*	*	*
C14 C15 C16 C17	3K2010111	CAPACITOR: fixed; mica; 100-mf ± 10%; Sangamo type CM20A101K; (bakelite insulation; 25/32" long x 7/16" wide x 7/32" thick; axial wire leads, 1-1/4" long).	4			*	*	*	*
C18 C19 C20	3DB60-60	CAPACITOR: fixed; electrolytic; 4-section; 10-, 10-, 10-, 10-mf; 450 v dc (working); Cornell-Dubilier type UP; (hermetically sealed; metal can, 2-1/2" long x 1-1/2" diam; 8 terminals on 2" diam, 4 on 5/8" diam, 4 on 1-1/16" diam).	1			*	*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

b. Antenna Coupling Unit CU-23-( )/TRQ-1 (cont.)

Ref symbol	*Signal Corps stock No.*	*Name of part and description*	*Quan per unit*	*Running spares*	*Orgn stock*	*3d ech*	*4th ech*	*5th ech*	*Depot stock*
T1	2Z9619-66	TRANSFORMER: filament and power; (primary 115-v ac, 60-c; secondary No. 1, 600-v; center-tapped; secondary No. 2, 6.3-v; 2-amp; hermetically sealed; 7 glass terminals on bottom; over-all dimensions 4-3/6" x 3" x 3-1/8"; four 1/8" mounting holes on 2-1/2" x 4" mounting center).	1			*	*	*	*
V101 V102 V103 V104	2J6AC7	TUBE VT-112: JAN-6AC7.	4			*	*	*	*
V105	2J6X5GT/G	TUBE VT-126-B: JAN-6X5GT.	1			*	*	*	*
	3Z3275	FUSE HOLDER: cartridge type; Littelfuse type 1075; (2-1/2" long x 11/16" diam).	1			*	*	*	*
	3Z1927	FUSE FU-27: cartridge; 2-amp; 250-v; Littelfuse size 3AG; (1-1/4" long x 1/4" diam).	1			*	*	*	*
	2Z7111.61	CONNECTORS: Amphenol 83-1R; coaxial cable connectors; (1-1/16" long x 1" wide x 1" diam; 9/16" long, bushing 5/8" diam; 4 mounting holes on 3/4" mounting center).	4			*	*	*	*
	2Z5040-360	CONNECTOR HOOD: Amphenol 83-1H; coaxial cable hood; (13/16" long x 1" wide x 1" diam; 1/2" hole opening to 3/4" hole; 4 mounting holes on 3/4" mounting center).	2			*	*	*	*
	2Z5927	PILOT LIGHT: 6.3-v; screw-base; Mazda No. 44; (1-1/8" long x 3/8" diam).	1			*	*	*	*
	2Z7098-10	ON-OFF PLATE: 15/32" hole; ON and OFF on each side; (1" long x 5/8" wide).	1			*	*	*	*
	22K8678.71	SOCKET: receiver-tube; Standard Octal Cinch No. 9880; (moulded-bakelite; 1-1/8" diam; mounts by means of cadmium-plated metal saddle with 1-1/2" mounting center).	5					*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

c. Antenna Assembly AS-93/MRQ-2

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2A264B-57	ANTENNA WIRE ASSEMBLY AT-57/MRQ-2.	1			*	*	*	*
	2A700-58	COUNTERPOISE AT-58/MRQ-2.	1			*	*	*	*
	2A1324	GUY GY-24A.	2			*	*	*	*
	2A2108	MAST CAP AND GUY ASSEMBLY.	2			*	*	*	*
	d. Interphone Control Box BC-606-( )								
	2C1617A/C4	CLAMP: mounting; WE.	1			*	*	*	*
	2C1617A/C3	COVER: dust; WE.	1				*	*	*
	2C1738A/J1	JACK: headset and microphone; 3-conductor; WE.	1			*	*	*	*
	2C4460-683A/K1	KNOB: volume control; knurled; 1" x 1/2"; WE.	1			*	*	*	*
	2Z7288-3	POTENTIOMETER: 50,000-ohm; IRC type CP; taper B.	1			*	*	*	*
	2C6494A/R1	RECEPTACLE AND CAP: magnetic microphone; (receptacle; Amphenol AN-3102-14S-2S; cap: Amphenol 9760,-14-G, less chain).	1			*	*	*	*
	3Z6200-6	RESISTOR: carbon; insulated; 2,000-ohm; 1/2-w ± 5%; IRC-BT-1/2.	1			*	*	*	*
	2C4403A/S2	SWITCH: toggle; SPST; small case; Hart & Hegeman special.	1			*	*	*	*
	4E9900-700A	TERMINAL STRIP: 8 pair contacts; WE 700A.	1				*	*	*
	e. Control Box C-109/MRQ-2								
	2Z5838	KNOB: pointed; black, (part of Centralab switch 2542, B & W WW246).	1				*	*	
	2Z8799-239	SOCKET: SO-239, coaxial.	3				*	*	
	3Z9825-58.13	SWITCH: Centralab 2542.	1				*	*	
	f. Axle RL-27-B								
	6H227A/15	BEARING: needle; (supports shaft).	4						*
	6H227A/8.1	BUSHING: bearing; nonlocking.	1						*
	6H227A/9.1	BUSHING: bearing; locking.	1						*
	6H227A/18	PIN: (holds bushing).	2						*
GC-15	6H915	CRANK GC-15.	1						*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

g. Microphone T-17-( )

Ref symbol	*Signal Corps stock No.*	*Name of part and description*	*Quan per unit*	*Running spares*	*Orgn stock*	*3d ech*	*4th ech*	*5th ech*	*Depot stock*
	3E2076A	CORD CO-76-A: 5′; 3-conductor.	1				*	*	*
	2Z7168	PLUG PL-68.	1				*	*	*
	3Z8109	SWITCH SW-109: (for all models except Microphone T-17-D).	1				*	*	*
	3Z8217	SWITCH SW-217: (for Microphone T-17-D).	1				*	*	*
	3Z10161	TERMINAL TM-161: (terminates cord at plug end).	3				*	*	*
	h. Microphone T-45								
	2B1589/1	SHIELD: breath.	1				*	*	*
	2B1589	UNIT MICROPHONE MC-419.	1				*	*	*
	i. Lineman's Equipment TE-21								
	6Q4523A	BELT LC-23-A: (sizes 20, 22, 24, 26, and 28).	1						*
	6Q27024	CLAMP LC-24.	1						*
	6Q28205	CLIMBERS LC-5.	1						*
	6Q49001	HAMMER HM-1.	1						*
	6R4607	PLIERS TL-107.	1						*
	6R16810	SCREWDRIVER TL-106.	1						*
	6R56013A	WRENCH LC-25-A.	1						*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

j. Tool Equipment TE-41

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	6Q335	ALIGNMENT TOOL: neutralizing; compensating.	1		*		*	*	*
	6Q2044	BAG BG-44.							
	6Z1372	BRUSH TL-72.	1		*		*	*	*
	6G184-1	CARBON TETRACHLORIDE: 8-oz.	1				*	*	*
	6Q38033-8	FILE: flat; 8".	1				*	*	*
	6Q38500-6	FILE TL-133.	1				*	*	*
	6Z4002	FLASHLIGHT TL-122.	1				*	*	*
	6Q49712	HAMMER: machinist; ball peen; 12-oz.	1				*	*	*
	6Q51131-5	HANDLE: file; 5-1/4".	1				*	*	*
	6Z5030	HANDLE: metal; cone-socket type; SS White Dental Co. 15, or equal.	1				*	*	*
	6Q52208	HOLDING TOOL: 8" reach; Bonnell K8.	1				*	*	*
	6Q60229	KNIFE TL-29.	1				*	*	*
	6R15999	SCREWDRIVER: Phillips 1A.	3				*	*	*
	6R15600	SCREWDRIVER: 4" blade.	3				*	*	*
	6R15811	SCREWDRIVER: 5" blade; insulated wood handle.	1				*	*	*
	6R16890	SCREWDRIVER: 10" blade.	1				*	*	*
	6R16410	SCREWDRIVER TL-105: 8" blade; 5/16" tip; insulated wood handle.	1				*	*	*
	6N7531	SOLDER M-31: resin-core.	1				*	*	*
	6R24618	SOLDERING IRON: electric; 100-w; 12-v.	1				*	*	*
	6R24617	SOLDERING IRON TL-117: electric; 100-w; 105-120 v; 3/8" tip.	1				*	*	*
	6R24503H	SOLDERING IRON TL-132: jeweler No. 2; with handle; 3-oz.	1				*	*	*
	6N8583	TAPE TL-83: friction, 3/4", 1/2-lb roll.	1				*	*	*
	6N8692	TAPE TL-192: rubber; 15' roll.	1				*	*	*

*Indicates stock available.

43. MAINTENANCE PARTS LIST FOR RADIO CONTROL CENTRAL AN/TRQ-1 ( ) (cont.)

j. Tool Equipment TE-41 (cont.)

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	6R41065C	TOOL: switchboard; WE 265C; contact burnisher.	1				*	*	*
	6R42167	BLOW TORCH TL-130: gasoline; 1-pt; flat.	1				*	*	*
	6R38005/2C	TWEEZERS: nickeled-steel; 5".	1				*	*	*
	6G2203	VARNISH: glyptol; blue; 4-oz can; GE 1153.	1				*	*	*
	1B7.1	WIRE W-7: ball; No. 18; single; solid; soft drawn; DCC; annunciator.	8				*	*	*
	1B140	WIRE W-140: No. 18; single; flexible; glazed cotton braid; color-coded black; Belden remote, or equal.	40				*	*	*
	6R55230	WRENCH: hex; Bristol 6.	3				*	*	*
	6R55231	WRENCH: hex; Bristol 8.	3				*	*	*
	6R57400	WRENCH: hex; 5/64"; Allen or equal.	3				*	*	*
	6R55496	WRENCH: hex; L-shaped; 3/32" across flats.	3				*	*	*
	6Z7070-1	MIRROR: mouth; contra-angle; 7/8" plane; cone-socket stem; without handle; White Dental Co. 53, or equal.	1				*	*	*
	6R1913	DRIVER: nut; hollow-shaft.	1				*	*	*
	6G1007	OIL: lubricating; 3/4-oz.	1				*	*	*
	6Z7500-000	SANDPAPER: flint; #000.	1				*	*	*
	6N4102	PASTE: soldering; 2-oz.	1				*	*	*
	R4719-7A	PLIERS: combination; side cutting; 7-1/2".	1				*	*	*
	R4712-6	PLIERS: chain; short-nose; 6".	1				*	*	*
	6R4513	PLIERS: TL-13.	1				*	*	*
	6R4603	PLIERS: TL-103.	1				*	*	*
	R4626	PLIERS: TL-126: chain; long-nose; without cutters; 6 or 6-1/2" long.	1				*	*	*
	6R15371	SCREWDRIVER: optician; 2-1/2" blade.	1				*	*	*
	6R55502	WRENCH SET: midget; Williams 1285-P with 1519 superplier.	1				*	*	*
	6R55006	WRENCH TL-111: single end; Crescent A-16.	1				*	*	*
	3A30	BATTERY BA-30.	2				*	*	*

*Indicates stock available.

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